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THE UNIVERSITY OF ALBERTA

ELEMENTARY SCHOOL TEACHER AND STUDENT BEHAVIOUR IN CLASSROOMS AND OUTDOOR SCHOOLS

by

Ⓒ COLIN EDWARD LUMBY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

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Dear Colin,

You are very welcome to use some of the questions on my opinionnaire. In fact, I'm pleased you're finding it useful.

I managed to get out on one good canoe trip at the end of school and went on a very interesting camping tour through northern Europe and U.S.S.R.

I hope all goes well with you.

Sincerely,

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ABSTRACT

The main purpose of this study was to document outdoor teacher behaviour using the model for studying teaching by Dunkin and Biddle (1974).

Part I of the study included three teachers for whom presage, contextual, and product data were collected. Process data included high- and low-inference observations made prior to, during, and following a 3-to-5 day outdoor residential school experience.

Part II comprised a descriptive record of "a week in the life of a classroom teacher at outdoor school."

Analyses of the descriptive data suggested seven hypotheses for further study:

1. Outdoor education as practiced by elementary teachers may need to be re-examined with a view to revising and improving the content and methods employed by formal and informal agencies of teacher preparation.

2. Teachers interacting at outdoor school reveal more warmth and less criticism but may be less smooth.

3. Community support is significant to the continuation of outdoor schools.

4. Teachers decline in the dimensions of acceptance-understanding and problem-solving immediately following outdoor school.

5. Teachers who are more indirect (responsive) are more accepting of student ideas but are associated with students who do not exhibit more initiating behaviour at outdoor school.

6. Teachers at outdoor school talk for more than half the time and the students talk for correspondingly less than half the time.

7. Classroom teachers could make better use of the unique aspects of outdoor education methods and materials. Unique aspects include first-hand learning in a natural setting employing discovery-learning techniques.

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My children, Pollie, Wendy, and Martin, who helped more than they can know; and

My wife, Ethel, for her love and faith. The entire family made any effort more worthwhile.

* * * * *

This work is dedicated to many former teachers, including Mr. J. K. Williams, Mr. W. P. Dickinson, and Dr. J. Smith.

* * * * *

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Chapter 1

BACKGROUND TO THE STUDY

Introduction

"Outdoor education" was an almost unknown phrase in North American education fifty years ago. The early titles for the innovation included "camping education, school camping and resident outdoor education" (W. M. Hammerman, 1980:xi). Various forms of outdoor education are widespread in North America and, in the USA alone, data indicate that "approximately 76% of the states . . . have schools that provide resident outdoor education opportunities" (ibid.: 124). Almost all provinces and territories in Canada have schools which provide similar opportunities.

The basic tenets of outdoor education have changed little during the half century of growth, although programs have varied to accommodate current concerns. It may be said that wherever outdoor education is practiced there are two aspects which are prominent and, therefore, may be used to characterize the term as used in the present study:

> The first and this is the central theme . . . is that there is need for direct contact with the environment; that some learning makes a deeper impact and is retained longer when a concept or an object is discovered, observed, sensed, and interpreted in the natural setting. This conviction lies behind the rapid

> growth of programs in the outdoors.
>
> The second aspect relates to living with our fellow creatures. Teachers and students in outdoor resident centres participate in small informal groups on a twenty-four-hour-a-day basis; sharing food and shelter, work, and leisure in a cooperative milieu with concern for one another's needs. (Carlson, in W. M. Hammerman, 1980:x)

Outdoor education as a method of learning could be said to employ "first-hand experiences" while residential outdoor education has an added social dimension. (This study was concerned with the more comprehensive phenomenon of residential outdoor education.)

Outdoor education has grown in popularity and acceptance in North America in the face of classroom-based education which has relied upon symbols and representations of the real world. Traditional, classroom-based education, with its dependence on vicarious forms of learning, may be contrasted with "outdoor methods." The foundations of outdoor education are not new and they may be traced through recent history.

Historical Development of Outdoor Education in Europe and the United States

Instances of teaching and learning in "direct contact with the environment" may be found in pre-literate and early civilizations. During the Renaissance, the enlightenment, and later during the industrial era, first-hand learning in a natural setting was espoused by writers such as Comenius, Rousseau, and Pestalozzi (W. M. Hammerman, 1980:xv).

The late nineteenth and early twentieth century educational developments in Europe and North America were profoundly influenced by the foregoing philosophers, particularly Rousseau.

> As far as possible children were to learn not from books but from things--from plants in the field, rocks in the soil, clouds and stars in the skies. Enthusiasm for Rousseau's educational ideas stimulated Pestalozzi and Lavater in Switzerland, Basedow in Germany, Maria Montessori in Italy, John Dewey in America; "progressive education" is part of the legacy of Rousseau. Inspired by Rousseau, Friedrich Froebel established the kindergarten system in Germany, whence it spread throughout the Western world. (W. Durant & A. Durant, 1967, Bk. X: 88)

Other educational philosophers to embrace the "learning by doing" cause included Whitehead, James, and Kilpatrick (W. M. Hammerman, 1980:xvi). In his book, *Fifty Years of Resident Outdoor Education 1930-1980*, W. M. Hammerman identified the early period of outdoor programs in the USA as the period of transition (pre-1930). In the same volume he described five more periods--including 1930-1939, the period of inception--during which time much was written about outdoor education while, coincidentally, the conservation movement was beginning. The period of experimentation, from 1940 to 1951, revealed a national trend in outdoor education with outdoor programs becoming less recreational and more in line with the existing school program. The period of standardization from 1952 to 1960 contained the formation of associations and the publication of manuals.

The spectrum of activities expanded up and down the grades and across the whole curriculum. The period of resurgence and innovation from 1960 to 1969 was characterized by diversification and a number of texts being published. L. B. Sharp, who was considered by many to be the father of outdoor education in the USA, fostered the outdoor education movement until his death in 1963. Sharp's (1943:363-364) statement has been used as the creed of outdoor educators since it was coined in 1943:

> That which ought and can best be taught inside the school rooms should there be taught, and that which can best be learned through experience dealing directly with native materials and life situations outside the school should there be learned.

The latter half of the decade included concern for the troubled environment and special populations. New directions developed during the period from 1970 through 1979. Cooperative ventures between Canada and the USA were a feature of this decade, concomitant with the emergence of adventure and experiential education.

Historical Development of Outdoor Education in Canada

It is almost redundant to state that the development of outdoor education in Canada was significantly influenced by the development of the movement in the USA.

Passmore (1972) noted that prior to 1930 camping and outdoor education in Canada shared obscure roots. The early outdoor educators were camp leaders like their counterparts in the USA. The twin developments of camping education and conservation were observed after the end of World War II. During the postwar period, forestry organizations in British Columbia and Ontario sponsored programs of conservation, whereas day-camps and agencies like the Boy Scouts and Girl Guides fostered camping in schools (Passmore, 1972:8).

The first, recognized, outdoor residential school in Canada revealed a bias toward the natural sciences in its title "The Toronto Island Natural Science School," when it opened in 1960. Pilot schemes, taking the lead from Toronto and the USA, followed in other parts of Canada during the early 1960s. Landmark changes in Ontario and Alberta's School Acts occurred in 1965 and 1970 allowing school boards to purchase land and foster outdoor residential schools.

Currently, every province and the territories provide outdoor education in one form or another.

Justification for the Study

The foregoing has shown that outdoor education was predicated on the educational philosophy of John Dewey and his antecedents. The central concept was that learning was more effective when dealing with material first-hand rather than through vicarious methods (Dewey, 1959:47). As an outgrowth of direct experience, the "discovery method" was favoured by outdoor educators. The underpinnings of discovery-learning are not clear "but consist rather in a loosely grouped amalgam of ideas from cognitive psychology, child development and the study of creativity" (Nuthall & Snook, in Travers, 1973:59-60). Wittrock (in Shulman & Keislar, 1966:41-42) declared that:

> John Dewey's (1910) preferences for problem solving, laboratory work and a scientific method produced a decided effect upon education in our own century. He suggested concrete experience, active responses, problem solving projects, and do-it-yourself learning. Although he emphasized social interaction and problem solving as ways to learn, he also recognized three levels of the curriculum.

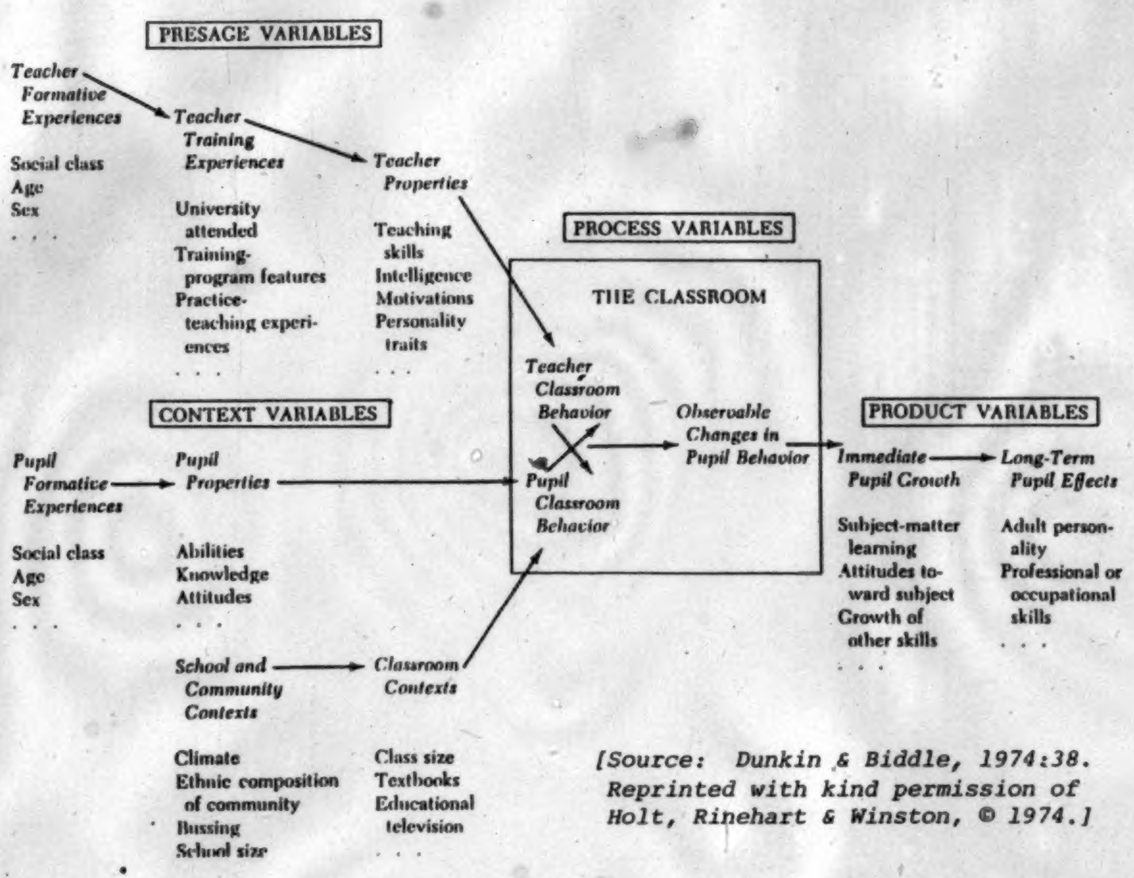
The socialization aspect of residential outdoor schools was considered to be as important as dealing with materials first-hand through a discovery-learning emphasis.

In spite of a fifty-year, or more, history of resident-outdoor education there has been very little research to substantiate the worth of such programs (D. R. Hammerman & W. M. Hammerman, 1973:369). The present study was an attempt to find out if teachers did, indeed, use first-hand experiences and employ a discovery-learning approach in a social setting.

Overview of Research on Teaching and Its Relationship to the Study

In deliberating the foregoing problems, the investigator considered the general topic of research on teaching. The *Second Handbook of Research on Teaching* (Travers, 1973) dealt with a variety of topics relating to education but not outdoor education specifically. Research on teaching has been traditionally concerned with education in the classroom. With outdoor education becoming more formalized and institutionalized there is a need to investigate and analyse all aspects of teaching, learning, and program development in the outdoor setting.

The study of teaching and learning in natural settings would, it was hoped, reveal the actual practices of teachers and students. The framework for studying teaching through direct observation was proposed by Rosenshine and Furst (in Travers, 1973:122-183). Their review included reference to a "descriptive-correlational-experimental loop" paradigm. Descriptive studies should, according to Rosenshine and Furst, precede correlational and experimental studies. With the limited availability of research in outdoor education, this investigator wished to restrict the enquiry to the descriptive element. The most comprehensive, recent review of research on observation studies has been produced by Dunkin and Biddle (1974). In their landmark text they proposed a model for reporting research in "natural settings" while excluding non-classroom venues. Their model, linear in format, showed characteristics which offered a suitable framework for the present study. The model (see Figure 1) has taken into account the presage, context, process, and product variables. Thus, it suggests


PRESAGE VARIABLES
Teacher Formative Experiences
Social class
Age
Sex
. . .
Teacher Training Experiences
University attended
Training-program features
Practice-teaching experiences
. . .
Teacher Properties
Teaching skills
Intelligence
Motivations
Personality traits
. . .
PROCESS VARIABLES
THE CLASSROOM
Teacher Classroom Behavior
Pupil Classroom Behavior
Observable Changes in Pupil Behavior
CONTEXT VARIABLES
Pupil Formative Experiences
Social class
Age
Sex
. . .
Pupil Properties
Abilities
Knowledge
Attitudes
. . .
School and Community Contexts
Climate
Ethnic composition of community
Bussing
School size
Classroom Contexts
Class size
Textbooks
Educational television
. . .
PRODUCT VARIABLES
Immediate Pupil Growth
Subject-matter learning
Attitudes toward subject
Growth of other skills
. . .
Long-Term Pupil Effects
Adult personality
Professional or occupational skills
. . .

[Source: Dunkin & Biddle, 1974:38. Reprinted with kind permission of Holt, Rinehart & Winston, © 1974.]

Figure 1

A Model for the Study of Classroom Teaching that children and teachers bring to the classroom important characteristics which, through due process, reveal interactions that form unique outcomes. The theoretical basis for the model would appear to be compatible with the views of the philosopher-educator John Dewey. The practitioners of outdoor education have drawn heavily on Dewey to support their case for education in the "real" world and, therefore, the shared philosophical base for outdoor education and the Dunkin and Biddle model made it appropriate to use the paradigm to study what teachers and students do at outdoor schools. The extensive/intensive nature of outdoor education lends itself to total description and, therefore, field notes were used to amplify more specific observations. The major limitation of the model was that the linear format implied a simple cause-and-effect relationship without accounting for complex feedback loops and concomitant phenomena. An additional limitation of the model was the omission of the teacher variable of "lesson preparation."

Statement of the Problem

The purpose of this study was to determine the answer to the question "How do teachers and students behave in classrooms and residential outdoor schools?" The investigation was conducted within the framework of the Dunkin and Biddle (1974:38) model for the study of teaching. Research data were gathered through ratings, frequencies, and field notes.

Definitions of Terms

Major terms used throughout the study are defined as follows:

Outdoor Education (O.E.) is a teaching-learning process which emphasizes first-hand sensory experience in natural settings.

Outdoor School (O.S.) is a three-to-five-day residential experience during which time the students, with their teachers, engage in academic and social experiences contiguous with the normal school program.

Interaction analysis and *classroom observation* studies are systematically observed, teaching-learning phenomena which are recorded and interpreted.

The Dunkin and Biddle (1974:38) teacher model employed four categories of variable clusters as described below.

Presage variables which include:

> . . . the characteristics of teachers that may be examined for their effects on the teaching process--thus, teacher formative experiences, teacher-training experiences, and teacher properties. (ibid.:39)

Context variables which include:

> . . . the conditions to which the teacher must adjust--characteristics of the environment . . . . *pupils' formative experiences* . . . . *pupil properties* . . . . *school* [and] *community* [and] *classroom contexts*. (ibid.:41)

Process variables which include:

> . . . the actual activities of classroom teaching--what teachers and pupils *do* in the classroom. (ibid.: 44)

High-inference data which include:

> . . . items appearing on rating forms . . . characterized as broad, requiring much inference on the part of the observer and reader. (Rosenshine & Furst, in Travers, 1973:133).

Low-inference data, including items on rating forms, which were:

> . . . more specific and appeared to require less inference by the observer and reader. (ibid.:133)

Assumptions

In order to follow the adopted Dunkin and Biddle (1974:38) model (Figure 1), it was presumed that the various segments included discrete but related data.

The following assumptions were made in order to frame the general enquiry and permit more specific research questions to be asked. These assumptions influenced the design of the enquiry and data collected.

Assumption 1

Teachers behave consistently with their innate qualities, formative experiences, and training.

The current body of literature which considers the role of various presage variables that teachers bring to teaching is inconclusive, but consistency is claimed inasmuch as "that such effects as teachers have are functions of their personalities" (Nuthall, in Dunkin & Biddle, 1974: 40).

Assumption 2

Students behave consistently with their innate qualities and formative experiences.

Following the publication of *Pygmalion in the Classroom* (Rosenthal & Jacobson, 1968), researchers questioned the validity of teachers' expectations of their students. There is, however, a growing body of knowledge which suggests that students behave in ways consistent with their innate qualities and formative experiences (Dunkin & Biddle, 1974:439, 440, 441).

Assumption 3

Classrooms and outdoor schools are settings in which teaching-learning interactions take place.

Research has indicated that interactions in teaching-learning occur in classrooms (Rosenshine & Furst, in B. O. Smith, 1971 and in Travers, 1973). Whereas only a few studies of teaching have been conducted at outdoor schools, the evidence collected thus far indicates that interactions in teaching-learning occur there too (Willson, 1973; Askham, 1974; Blocksidge, 1978).

Assumption 4

Student growth is a product of process variables.

Research in the process-product tradition has yielded important findings for practicing teachers (Medley, 1977; Borich, 1979). Most of the findings were related to the classroom but a few not included in Medley's and Borich's reviews revealed positive correlations between process and product variables in the outdoor setting (Berry, 1973; Greene, 1976).

Purpose of the Study and Research Questions

This study was intended to document actual teacher behaviour in line with the Dunkin and Biddle (1974) model for the study of teaching (Figure 1).

In order to investigate the behaviour of teachers and students in classrooms and outdoor schools, the following seven questions were formulated:

1. Presage: What are the formative, training, and teaching experiences of the teachers selected for the study?
2. Context: What are the classroom, school, and community contexts of students and teachers selected for the study?
3. Process: What are the classroom/outdoor school behaviours of the students and teachers selected for the study?
4. Product: What are the outcomes of students in classrooms and outdoor schools?

The four items above raised further questions relative to the interrelatedness of the variables, and they were posed as follows:

5. What is the nature of the classroom climate and teacher directiveness in the classroom and at outdoor school?
6. How does the teacher discipline and manage students in the classroom and out-of-doors?
7. What is the social system of an outdoor school?

The general intention and interpretation of the data were to provide opportunities to "improve" rather than to "prove" hypotheses. In keeping with the purpose of descriptive research, as clarified by Rosenshine and Furst (in Travers, 1973), the major, tentative conclusions were seen to be "hypothesis generating."

Chapter 2

RATIONALE OF THE STUDY

Overview

In this chapter theoretical constructs basic to the study are derived from relevant literature. Findings from research on teaching include reference to the so-called "commitments" which underlie outdoor education.

During the first half of the twentieth century, research on teaching concentrated on transactions in classrooms. A few studies and scattered reviews of research on teaching out-of-doors have revealed little of what has yet to be learned about teaching in settings other than the classroom. Furthermore, early studies were concerned more with "teacher effectiveness" than with teaching per se (American Educational Research Association, 1953). The significance of contextual factors as well as teacher and student behaviour has been considered in more recent years.

In order to understand more clearly the mass of variables which comprise the teaching-learning process it is useful to analyse what has been called "a complex, rational, observable process about which we know little as yet" (Dunkin & Biddle, 1974:318). No higher order theory has been constructed about teaching which would allow even "broken axiomatic theories" (Snow, in Travers, 1973:83). McGuire (in Gage, 1978:90) suggested that a systems model, rather than a linear one, more appropriately describes the teaching-learning processes. However, the cumulative, scientific research on teaching has not arrived at the point of postulating a theory based on a systems model. Until such time as more complex theory can account for teaching-learning variables, simpler theoretical constructs will have to suffice. One such model for the study of teaching seemed appropriate for a study of outdoor education. The Dunkin and Biddle (1974:38) model (see Figure 1 on p. 8) was based on Medley and Mitzel's (in Gage, 1963) analysis, which included clusters of variables in four categories: presage, context, process, and product segments. The model was adopted here for two reasons: first, recent reviews of research on teaching (Rosenshine & Furst, in Travers, 1973; Dunkin & Biddle, 1974; Medley, 1977; Gage, 1978) considered the analyses based on the model to be stepping stones toward improved hypotheses about the nature of teaching. Current studies at active research centres in North America are generating data in descriptive, correlational, and occasional experimental studies which follow the model. Research such as the present study may be related to other investigations which share a common framework. Second, outdoor-teaching/learning includes unique contexts and process settings, all of which would be better described by relatively "thick descriptions" (Ryle, 1949) in order to paint a broad picture. A model, first proposed by Medley and Mitzel (in Gage, 1963) was adapted by Dunkin and Biddle as the framework for their book, *The Study of Teaching*, which reported research in the "systematic observation of teaching in classrooms" (1974:3). It was thought appropriate to examine at first-hand, through observation, a process which claims to use first-hand experiences--that is, outdoor education.

The variables selected for study, therefore, included teacher, student, and community background, student and teacher interaction, and student outcomes.

Theoretical Constructs

The theoretical constructs upon which the rationale of the study was built are presented as follows.

Presage Variables

In describing teacher behaviour outdoors it was considered important to record outdoor related background data. Teacher formative experiences selected for study included the variables of age and sex as basic demographic data. Teacher training experiences were included to establish whether or not any specific outdoor education courses had prepared them for the role of teaching outdoors. The early proponents of outdoor education envisaged that courses would appear in colleges and universities so as to prepare teachers for the role (W. M. Hammerman, 1980:93). There is evidence that post-secondary institutions offer courses on outdoor education in the USA (Bachert, in W. M. Hammerman, 1980:98-104); however, Canadian universities have not followed suit to the same degree. It was also deemed important to ascertain the influence which universities had had on the teachers. In-service programs or other influential agents were also included in a questionnaire which teachers were asked to complete, so as to elicit data on formative experiences.

Teaching skills, personality traits, motivations, and so on may be included under the rubric of teacher properties. Outdoor education has long operated under the banner of a democratic teaching style. The Minnesota Teacher Attitude Inventory (MTAI) (Cook, Leeds, & Callis, 1951) was designed to measure teacher attitudes toward teacher/student relationships on an autocratic/democratic continuum, a dimension viewed as consequential to the present study. The MTAI also provides published norms against which findings can be interpreted.

Context Variables

Student formative experiences and properties were perceived as significant because, in recent years, studies of teaching have shown that treatments have quite different effects on different student groups (Brophy, 1979:1-6). School records were believed to be the logical source for these data.

School and community contexts were examined in lesser detail but at least tacit support of the residential outdoor school was adjudged as necessary.

Classroom contexts were also needed variables in view of the growing interest in the ecology of classrooms (Gage, 1978:71). The unique aspect of removing the class to an entirely different setting was reasoned to be significant in light of the impact which environment is claimed to have on the subjects, according to Gump, Schoggen, and Redl (1963), Barker and Gump (1964), Barker (1965), Barker and Schoggen (1973), and Gump (1967). Compiling an inventory of the environment was felt to be best achieved through notes and sketches made during periods of observation by the researcher.

Process Variables

The teacher-and-student classroom and outdoor-teacher behaviour were seen as needing more intensive study. In the Dunkin and Biddle (1974) model, the classroom and its actors were shown at the heart of the teaching-learning process. The direct observation of teachers and students in interaction was felt to be particularly appropriate because of the underlying assumption of outdoor education which states that learning is more likely to occur with "first-hand experiences" (W. M. Hammerman, 1980:xvi). The instruments employed included both high- and low-inference systems in order to capture elusive qualities/quantities often missed when using either instrument exclusively (Gage, 1978: 70). The observation of live teaching/learning phenomena to add to the richness of description and interpretation has been supported by Blumer (in Gage, 1978:66). In choosing a low-inference instrument, the following points were borne in mind. The categories were to be compatible with audio-taping in order to accommodate the mobile nature of outdoor teaching. The verbal interaction instrument most used to date has been the Flanders Interaction Analysis Category (FIAC) system which is based on the psychology of superior-subordinate relationships (Freiberg, 1981:1). Analysis of the dialogue allowed categorization of the verbal interaction into direct or indirect behaviour. Outdoor education methods have emphasized the "discovery" or more indirect style as the preferred approach, therefore, the FIAC was selected for this study.

The high-inference instrument chosen was a composite of instruments, described in Carkhuff (1969), Kounin (1970) and Truax (1971), which were used as a single instrument in three studies by Marland (1977), Eggert (1977), and Blocksidge (1978). The first four variables in the instrument were in the teacher management category, thus allowing that function to be observed in the non-classroom setting. The fifth and sixth variables were instructional qualities, both of which have been associated with gains in student learning (Rosenshine & Furst, in Travers, 1973:156). The seventh and eighth variables were interpersonal in nature and entirely in keeping with preferred outdoor education teacher behaviour (J. W. Smith, Carlson, Donaldson, & Masters, 1972; D. R. Hammerman & W. M. Hammerman, 1973). Lessons coded for low-inference data were initially recorded on audiotape, whereas high-inference data were coded live in order that non-verbal communication could be recognized. Intervals selected for recording high-inference data suited the mobile nature of the observations, whereas low-inference data collection at 3-second intervals was virtually impossible "on the move."

Product Variables

Immediate and long-term growth measures were perceived to be important, even if elusive to collect. Some measure of student growth was sought which would indicate values often claimed as outcomes of outdoor education. Hoffmeister's (1971) Classroom Atmosphere Questionnaire (CAQ) was designed to reveal students' perceptions of their teachers in two dimensions: first, the dimension of the teacher as helping the child to solve problems and, second, the dimension of acceptance-understanding of the child by the teacher. These two dimensions have been counted by outdoor educators as important (J. W. Smith et al., 1972:30). Extensive product measures were not envisaged for the present study.

Findings from Research on Teaching and "Commitments" Underlying Outdoor Education

The foregoing examined the theoretical constructs upon which the study was based. Research in education during the twentieth century has been conducted in diverse ways of which some were viewed as fruitless. The following accounts for the failure of early research, and proceeds to describe the tradition of research into which the present study fits. Findings are presented from studies of live teaching and those which reflect "commitments" evident in outdoor education.

Teacher Effectiveness Studies

During the first half of the twentieth century teacher-related research has dealt primarily with studies of teacher-effectiveness, and Dunkin and Biddle (1974) reported over 10,000 such published works. The Committee on Criteria of Teacher Effectiveness of the AERA (1953) concluded that little of any substance had come out of the research conducted up to that time. Dunkin and Biddle

(1974:13) reported the following reasons to account for the lack of substantive results:

1. failure to observe teaching activities;
2. theoretical impoverishment;
3. use of inadequate criteria of effectiveness; and
4. lack of concern for contextual effects.

Research on Live Teaching

At the outset of the 1950s, researchers began to take a greater interest in studying teaching directly. Research in teaching has been extensively reviewed by Rosenshine and Furst (in Travers, 1973), Dunkin and Biddle (1974), Medley (1977), Borich (1977, 1979), Gage (1978), Clark (1979), and Peterson and Walberg (1979). The reviews cited have generally reported findings according to the clusters of variables initially identified by Medley and Mitzel (in Gage, 1963), and refined by Dunkin and Biddle (1974); that is, presage, context, process, and product variables. By observing teaching first-hand it was hoped that formulae for successful teaching might be developed. Generally, research was conducted with the express purpose of proving the superiority of one technique over another. Support for such beliefs (rather than for empirical evidence) coming from ardent advocates has been termed as "commitments" by Dunkin and Biddle (1974:51). The outdoor movement has had its share of "commitments." Outdoor education literature has revealed commitment to a number of pervasive constructs, as advocated by the proponents of the movement, and these may be grouped into three categories: (1) climate and directiveness; (2) discipline and group management; and (3) the classroom as a social system.

"Commitments" Underlying Outdoor Education

Progressive education had a distinct influence on the outdoor education movement and, particularly, on its early workers (W. M. Hammerman, 1980). The "commitments" noted all share a common association with progressive education. A review of relevant literature under the "commitment" headings follows:

Climate and Directiveness

Early studies in this area examined leadership styles which were based on the "autocratic, laissez faire, democratic continuum" (Lewin, Lippitt, & White, 1939). In the early naturalistic studies there was a confusion between warmth and directiveness, both of which emerged as concepts of leader behaviour and were incorrectly thought to be negatively correlated. The two variables were not necessarily related, however, as indicated in research conducted by McCandless (1961) and L. Smith and Hudgins (1964). H. H. Anderson (1939), pursuing his own independent enquiry, and Withall's (1948) teacher-centred dichotomy, both showed confusion between directiveness and warmth. R. C. Anderson (1959), in reviewing studies to that date, found them to be "weak and contradictory," which was not surprising in view of the posture taken in early research that conceptualized leadership in discrete categories.

Flanders (in Amidon & Hough, 1967:109) refined Withall's concepts and identified what he called "direct" and "indirect" influence. The confusion between "warmth" and "directiveness" persisted in Flanders' early work. The Flanders Interaction Analysis Category System (FIAC) and its derivatives were to become the most widely used classroom observation tool in North America. Modifications of the instrument were encouraged by Flanders and it has flourished. Dunkin and Biddle (1974) reviewed over 100 studies which employed FIAC or an adaptation of it, and awarded the instrument a moderate to high reliability. Because of the common philosophical link between preferred outdoor teacher behaviour (J. W. Smith et al., 1972; W. H. Hammerman, 1980) and progressive education, it was decided that FIAC was the instrument most compatible with the present study.

Dunkin and Biddle's (1974:114) review reported contradictory results on the relationship between a teacher's score on the Minnesota Teacher Attitude Inventory (MTAI) (Cook et al., 1951) and a teacher's indirectness. Higher scores on the MTAI were associated with greater acceptance of students' ideas (ibid.:124). Teachers' use of adverse criticism appeared unrelated to MTAI scores (ibid.:127). The MTAI was reviewed by Buros (1978:801) where it was found to be reliable but not absolutely valid as an instrument for predicting success at teaching. The MTAI was established on the premise that teachers with democratic views were better than other teachers. Progressive education and outdoor education shared that belief; thus, the MTAI was deemed a compatible instrument for this study.

In their review of research on "indirectness," Dunkin and Biddle (1974:120) drew a number of conclusions which they summarized thus:

> First, this concept reflects the *Commitment* of progressive education. Second, it is conceptually confused, in particular it elides the phenomena of warmth and directiveness, which are not necessarily related. Third, it is presumed to be measured by a number of single-faceted categorical instruments that are designed for live-observational use, although measuring "indirectness" or "directness" from these instruments requires a derivative statistic. Fourth, these instruments are reported to be reliable. Fifth, findings generated for "indirectness" have the annoying habit of being denied (or reversed) in other studies, although whether this is due to curvilinearity, to weakness of concepts or methods, or to contextual effects is not known. Sixth, teachers in standard classrooms are primarily "direct" in their operations. Seventh, teachers who are "indirect" are associated with pupils who initiate more. Eighth, teachers who are "indirect" score differently from others on a number of personality and teacher-assessment schedules. Ninth, teachers may be induced to be more "indirect" by various means, particularly training with the FIAC. Tenth, teachers who are "indirect" are found paired with pupils who achieve more and have more positive attitudes, although this finding does not seem to be a simple cause-and-effect one.

When they summarized "warmth," Dunkin and Biddle (1974:131) had this to say:

> Let us now attempt a similar summary for praise,

> acceptance, and criticism. First, they (also) reflect the *Commitment* of progressive education. Second, they are not as conceptually confused as "indirectness." Third, they are usually measured by categorical scores from instruments designed for live-observational use. Fourth, these instruments are reported to be reliable. Fifth, teachers in standard classrooms use relatively little praise, acceptance, and criticism in their communications. Sixth, findings generated for them are also likely to be denied (or even reversed) in other studies. Seventh, significant relationships have been found linking them more often with presage and context variables than with product variables. The *Commitment* is supported to the extent that classrooms have been found affectively neutral. On balance, it would also appear that teachers can be trained to greater acceptance of pupils' ideas. However, only criticism appears related to pupil outcomes, and even for this variable the product evidence is contradictory.

More recently, Soar and Soar (1978:105) have claimed support for the functionality of an "affectively neutral" classroom and cited no support for a "negative climate." Support for the necessity of a "warm emotional climate" was not evident in their view. Outdoor education writers have, in tune with their progressive education leanings, claimed the need for a warm, emotional climate.

Until recently classroom research has coded behaviour in high- *or* low-inference categories. Simultaneous coding could strengthen findings. In the present study, the incidence of teacher praise, acceptance of students' ideas, and criticism were recorded as indications of teacher warmth. Dunkin and Biddle (1974:124) reported a positive association between scores on MTAI and FIAC "acceptance of students' ideas." Rosenshine (1971) and Rosenshine and Furst (in B. O. Smith, 1971 & in Travers, 1973) categorized teacher variables which correlated most highly with student growth. They found that criticism correlated negatively with student growth. Teacher indirectness and use of student ideas were found to be positively correlated.

Though experimental findings were reported by Rosenshine and Furst (in Travers, 1973:159), they were not able to confirm the positive trends of the correlational studies. In addition, Rosenshine and Furst (in Travers, 1973), Glass (in Walberg, 1974), Good, Biddle, and Brophy (1975), and Blocksidge (1978) all recommended the collection of high- as well as low-inference data, in order to "provide specific details which would not be available to an investigator using only high-inference measures" (Rosenshine & Furst, in Travers, 1973:166).

Low-inference data collection in outdoor settings has been limited to a few studies. When Askham (1974) used a modified FIAC system to compare teacher-learning tasks in a classroom and a semi-natural botanical garden, teachers did not reveal different patterns of interaction in either setting. In recommending further research be conducted in more natural settings, Askham pointed to the fact that the FIAC system was not designed to record non-verbal events that may be useful data in a study of outdoor education.

Christie (in van der Smissen, 1972) used a modified FIAC system to compare outdoor teaching practices with varying degrees of experience and course work. He found that subjects with more experience and course work in outdoor education were more indirect in their teaching.

Willson (in van der Smissen, 1975), in reviewing research on verbal interaction and climate at outdoor schools, concluded that much of the research revealed a commitment to indirect, learner-centred interactions with varying results (Davidson, 1965; Shuster, 1968; Vogan, 1970; Willson, in van der Smissen, 1975; Dimock, 1975; Greene, 1976).

Wood and Cheffers (1978:21) applied a modified FIAC system (Cheffers' Adaptation of FIAS) to the analysis of adventure education. They arrived at ten conclusions, two of which were:

> 6. The problem-solving activities involved more students in the role of teaching agent. There was a minimum of environmental influence. Instructors were less direct, allowing more pupil initiation that was analytical and student directed.
>
> 10. In activities in which emotional responses were evidenced by the students, there was a corresponding response of acceptance, empathy, or encouragement by the instructor.

Warmth and empathy are high-inference variables related to climate. High-inference measures were chosen for the present study to complement low-inference FIAC data. Warmth, as measured by a scale adapted from Truax's (1971) scale of non-possessive warmth, was selected. A rating of five for warmth was described as follows:

> The teacher gives explicit evidence of a deep caring, prizing, and valuing of the student, and this

> is made clear to the student. Expectations of the student's highest and best is pressed for, indicating a deep respect. Voice tone and manner give evidence of a close relationship. (Adapted from Truax, 1971)

Outdoor educators claim to have greater opportunities for warmth and even for sharing deeper feelings at outdoor school (J. W. Smith et al., 1972; D. R. Hammerman & W. M. Hammerman, 1973). Blocksidge (1978) reported that teachers revealed mixed results for warmth at outdoor school. The scale for warmth was supplemented with one for empathy which was adapted from a Carkhuff revision of a scale devised by Truax (Carkhuff, 1969). A rating of five on empathy was described as follows:

> The first person's responses add significantly to the feeling and meaning of the expressions of the second person in such a way as to (1) accurately express feeling levels below what the person herself/himself was able to express or (2) in the event of ongoing, deep self-exploration on the second person's part, to be fully with him/her in his deepest moments. (Carkhuff, 1969:Revision of Truax scale)

The two scales for warmth and empathy were incorporated into an instrument used in Eggert's (1977) research. To complement the high-inference data, FIAC Category 1 included the teacher's acceptance of a student's feelings, which provided a low-inference measure of the empathy variable.

Rosenshine and Furst (in Travers, 1973:166) recommended complementing low-inference observation data with "student questionnaires" as a source of high-inference measures. The instrument selected for student opinions was the Classroom Atmosphere Questionnaire (CAQ)

(Hoffmeister, 1971) which was used to measure students' perceptions of their teachers in the two dimensions of "acceptance-understanding" and "problem solving." The former was intended to reflect the global quality of climate while the latter was to reflect the teacher's ability to help children solve problems, which relates to the low-influence data from FIAC for indirect teaching. Problem solving was recognized to be a key approach in outdoor education methods.

The FIAC system has continued for 25 years to be a reliable instrument (Freiberg, 1981). It was believed to be the best choice for collecting live, low-inference data in the mobile setting of outdoor education which espouses "indirect," "warm," teaching methods (J. W. Smith et al., 1972; W. M. Hammerman, 1980).

Management and Control

Research on classroom management and control has been conducted by Kounin (1970) and his associates. Outdoor education, in line with progressive education sentiments, has advocated voluntary student self-control as opposed to external or teacher control. Some of Kounin's early research was conducted in summer camps. Camps were closely associated with the foundation of the outdoor education movement (W. M. Hammerman, 1980).

One fundamental element of management and control is "directiveness." The strongest findings in this research tradition focussed on the "context-process" and "presage-process" clusters. Process-product findings were "weak," as reviewed by Dunkin and Biddle (1974), Eggert (1977), and MacKay and Oberg (1979). In contrast, Gage (1978:30) perceived the cumulative strength of a number of weak findings. The FIAC instrument was used for at least one third of the studies reviewed by Dunkin and Biddle (1974), who summarized their findings related to directiveness as follows:

> First, directiveness also reflects the *Commitment* of progressive education. Second, directiveness is not as conceptually confused as "indirectness." It does not appear to comprise a single variable, however, but to be reflected in a number of different classroom processes. Third, directiveness variables are usually measured by summed categorical scores from instruments that are designed for live observation use. Fourth, these instruments are reported to be reliable. Fifth, findings for aspects of directiveness are likely to be denied or reversed in other studies. Sixth, teachers are likely to talk more than half the time and pupils a third of the time in the typical classroom. Seventh, some of the directiveness variables reviewed above can be affected by experimental programs of teacher training. Eighth, these variables also appear to be weak in terms of affecting pupil achievement or attitudes. (ibid.:144)

FIAC and similar instruments were seen to be poor tools for examining the interactive phenomena of teacher strategies and pupil response (ibid.:145). The low-inference data were, nevertheless, collected in pursuit of other variables.

Classroom management and control has been investigated more thoroughly by Kounin (1970) who used a high inference coding technique that could be presumed to complement the FIAC data. Kounin's studies were reviewed by Dunkin and Biddle (1974), who found them to be free of so-called "commitment." Of the eight variables sifted out by Kounin, only four--momentum, withitness, smoothness, and overlappingness--were used in the high-inference instrument adopted for the dissertation research of Eggert (1977), Marland (1977), and Blocksidge (1978). Dunkin and Biddle (1974:161) provided the following review of Kounin's findings:

> . . . it is worthwhile that we summarize briefly the strengths and weaknesses of [Kounin's] studies. Among strengths: the concepts used are striking and original; the methods employed for classroom observation were sophisticated; reliability for coding judgments was high; and, above all, the relationships found between teacher and pupil variables were strong. Among weaknesses: the methods used for operationalizing concepts in research were complex; classrooms studied have so far been confined to the lower grades; and so far Kounin has not chosen to study, or at least to report findings for, process occurrence or presage-process or process-product relationships.

Further research by Brophy and Evertson (1976) and L. Anderson, Evertson, and Brophy (1978) supported Kounin's work with additional, positive results for student learning. Eggert (1977:169) concluded that "teacher management skills were positively related to a sense of well being by the students, social integrative behaviours, and adult-dependent task-oriented behaviours."

The outdoor setting poses unusual situations for teachers and students. In his study, Blocksidge (1978) revealed mixed results for the "teacher management skills" in indoor and outdoor settings. Having no low-inference data to amplify high-inference ratings was perceived to be a shortcoming of that study. (The present study did not rectify the situation as no low-inference data were collected.)

The Classroom as a Social System

The classroom has been viewed holistically where the ecology of the class assumes importance. Grimmett (1981:26) has stated that this research tradition

> . . . stems largely from the sociology of education where much research has investigated the classroom as a miniature social system. The lesson can therefore be analyzed in terms of the constraints placed on classroom instruction; e.g., curriculum, environment, community values, etc., and the system of roles undertaken by the participants; e.g., the teacher's role is to ask questions, the students to answer, and so on.

Dunkin and Biddle (1974), in their review of related research, concluded that subject matter, teacher age, teacher sex, and other contextual and presage variables, affect the format of the lesson. They also pointed out that student positioning and grouping were important. The major concern of the present study was to note the impact of the outdoor setting on the lesson format. Presage data about the teachers were gathered through the use of a questionnaire designed by the researcher and completed by each teacher. As the teachers' perceptions of outdoor education were considered to be important, they were asked to complete a questionnaire that elicited relevant data. Brekke's Outdoor Education Opinionnaire for Teachers (BOEOT) (1977) was selected for this purpose as it was developed and refined for an M.Sc. thesis.

In a novel environment such as presented by the outdoor setting, it was proposed to complement the previous data-gathering devices with field notes. Dunkin and Biddle (1974) identified a number of instruments for recording data under the rubric of "the classroom as a social system." The investigator had a choice of approaches to this topic: it was possible to select and use existing instruments or to invent new ones. The "descriptive record" (Doyle, 1977) was adopted for this phase of the study.

Descriptive records in the tradition of naturalistic studies (Gump, in Biddle & Ellena, 1964; Gump, 1967; P. Jackson, 1968; Kounin, 1970; Gump, in Moos & Insel, 1974) are based on anthropological research techniques. Complete "pictures of the way of life" were defined by Wolcott (1975: 112) as ethnography. The single researcher used "descriptive records" (gathered during relatively short periods) to supplement high- and low-inference data, thus enabling added richness in the picture to be presented. Descriptive records, as explained by Doyle (1977), were completed for the teachers in the study in "terms of an ecological model which postulates that environmental demands moderate performance and establish limits on the range of response options" (ibid.:51).

The contexts of school and students have recently received greater attention as a topic for research. Contextual studies of teaching have dealt with a variety of features, including student population, school building, and community. Dunkin and Biddle (1974:41) described clusters of variables under the headings of "pupil formative experience and properties," "school and community contexts," and "classroom contexts."

Sociological perspectives on teaching have developed since the publication of *The Sociology of Teaching* (Waller, 1932). Moreno (1953) focussed on the small groups in which role-playing was viewed as significant.

Classroom behavioural concepts were identified by Dunkin and Biddle (1974) in their review. They included studies on lesson format, group structure, group functions, teacher roles, student roles, moves in the classroom game, and ecology and movement. Their findings were gleaned from scattered studies and, therefore, were weak evidence from which to draw conclusions. Because of the uniqueness of the environment in outdoor education, it was thought sufficient to examine the role of the environmental variable in the present study. Though there were other instruments available, an approach influenced by Wolcott (1975) was adopted. He advocated an unstructured, open-minded approach without preconceived notions about the situation. A further influence on the study was the field of ecological psychology which considers the interaction between organisms and their environment. A group of psychologists at the University of Kansas developed an interest in the interaction and produced a number of studies on the topic (Wright, Barker, Nall, & Schoggen, 1951-1952; Gump, Schoggen, & Redl, 1963; Barker, 1965; Barker & Schoggen, 1973).

Wright et al. (1951-1952) recognized the significance of the behaviour setting, which was comprised of physical attributes, social characteristics, expected behaviour patterns, and "environmental coercion." They coined the term "psychological habitats," which were formed when unique individuals were in the behaviour setting and subject to "environmental coercion." Accordingly, children in classrooms may be expected (and expect) to behave in a particular way which may vary for the same children in an outdoor setting. Gump (1967) referred to this type of relationship as "synomorphic." Bronfenbrenner (1976) extended the "synomorphic" relationship theory by proposing a nested arrangement of micro-, meso-, exo-, and macro-environments. The difference in the first two levels are quite marked between schools and outdoor centres and may influence behaviour accordingly. Several authors have made arguments for conducting research in naturalistic settings, taking into account synomorphic relationships

Barker, 1965; Sells, 1969; Brandt, 1972; Doyle, 1978). Tikunoff, Berliner, and Rist (1975) employed ethnographic techniques, among others, in order to identify teaching variables in the California *Beginning Teacher Evaluation Study*. A number of the 61 teacher variables which emerged from the study were seen to be similar to those identified in reviews by Rosenshine and Furst (in Travers, 1973) and Dunkin and Biddle (1974): accepting, attending, belittling, consistency of message, filling time, illogical statements, pacing, spontaneity, and structuring.

The instrumentation for "descriptive records" is not well defined. In light of the present study's limitations, it was decided to include short periods of intense observation for a day in the life of a teacher in class and in outdoor school, and a separate week in the life of a teacher at outdoor school. An environment inventory was compiled for each of three teachers. An ethnographic record, the format of which was suggested by Johnson and Gardner (1979), was maintained for one teacher. One teacher was the subject for a "week in the life of a teacher at outdoor school," during which descriptive records and behaviour settings were recorded.

Persuasiveness and Clarity

Two additional high-inference variables were included in the instrument adapted by Eggert (1977).

They were the instructional variables of "persuasiveness" and "clarity," neither of which had complementary variables in the FIAC instrument. The two variables measured qualities rather than quantities. Subsequent to the collection of data during 1979-1980, an improved low-inference observation instrument has been contributed to the literature by McCaleb and White (1980).

Persuasiveness was derived from the work of Truax, Fine, Moravic, and Millis (1968) in the field of psychotherapy. A rating of five is given to a teacher who is the

> . . . kind of person that communicates a socially influential or persuasively powerful person. He/she is almost always able to get students to do the work related to the objectives of the lesson. (Note: This level does not imply that the teacher has chosen all the students' goals or objectives.) (Eggert, 1977:194)

The variable in the above form has not been used extensively in research on teaching. In his review of the few studies in which it has been used, Eggert (1977:168) found significant negative correlations between teacher persuasiveness and student behaviour which was "withdrawn" or "peer oriented" in non-teacher-directed settings. He also found:

> Teachers who rated high on persuasiveness motivated their students sufficiently to result in little student withdrawal or passivity, or peer oriented distractable behaviours. Significant positive relationships were found between persuasiveness and style E (adult dependent) behaviours in both teacher-directed and non-teacher directed settings. As expected, the teachers able to motivate their students had students pay close attention, contribute ideas, respond appropriately, and ask for help when it was appropriate. (ibid.)

MacKay (1979) identified a research-based list of teaching strategies which were correlated with student achievement. Persuasiveness or "the ability to motivate children" was positively correlated with one criterion measure of student achievement (ibid.:36).

Blocksidge (1978) used the HITB instrument to rate persuasiveness for three teachers before, during, and after outdoor school, and found that ratings increased during outdoor school for all three teachers. Two of the three teachers were rated lower for the variable after camp. Blocksidge lamented the lack of low-inference data with which to pin-point behaviours associated with the changes.

Ratings for persuasiveness were completed for the teachers in the present study thus allowing comparison with the findings by Eggert (1977) and Blocksidge (1978). While no low-inference data were recorded for persuasiveness, high-inference ratings were made for three teachers before, during, and after outdoor school in a pattern similar to that of Blocksidge.

Clarity is the explanatory function of teaching. It was identified in Rosenshine and Furst's (in Travers, 1973:156) review of literature as being one of the more promising variables for research. Clarity in the high-ference instrument was adapted from a scale by Emmer (in Eggert, 1977:195). A rating of five for teacher clarity was described as follows:

> The teacher, when giving instructions, answering questions, or explaining material to the class, is clear in his/her presentation. Adequate use of examples and illustrations are made, objectives are clearly stated, main points are summarized, and adequate checks of student understanding are made. (ibid.)

Rosenshine and Furst (in Travers, 1973) reported teacher clarity as being positively associated with student growth. It was pointed out, however, that the specific behaviours were not clear. Although "organization" appeared to be related to "coherence in a lesson," Rosenshine and Furst (in Travers, 1973:156) and Eggert (1977) found a positive relationship between teacher-directed settings and student Style F (social procedure) and non-teacher-directed settings and Style A (aggressive manipulation) student behaviour. Eggert (1977) noted a negative relationship between clarity and absenteeism.

If the antonym of clarity is vagueness, that variable is worthy of examination. Dunkin and Biddle (1974) argued that higher level discourse did not relate positively to student achievement. Tisher, Nuthall, and Lawrence (in Dunkin & Biddle, 1974) suggested that vagueness might be at the root of the problem. Vagueness was also found to be negatively related to student achievement.

Blocksidge (1978) rated teachers for "clarity" before, during, and after outdoor school and reported mixed results for the three teachers throughout the three phases. Outdoor education has claimed an affinity for "discovery learning" (W. M. Hammerman, 1980) which may run contrary to the purposes of clarity. The discovery-learning mode of teaching is still an hypothesis and is, as yet, undocumented (Wittrock, in Shulman & Keislar, 1966:39; Dunkin & Biddle, 1974:25).

Nevertheless, the spirit of discovery-learning has persisted in outdoor education texts (D. R. Hammerman & W. M. Hammerman, 1973; J. W. Smith et al., 1972). Some of the preferred characteristics of the learning-by-discovery teacher model were outlined by Worthen (in Travers, 1973: 61):

a. The teacher was not to act as the primary source of knowledge but was to give the impression that he depended on the students to help him work the problems.

b. The teacher was to avoid indicating anything about the generalizations to be discovered before nearly all students had discovered them for themselves.

c. The teacher was to prevent sharing of ideas among students.

d. If the students reached false conclusions or generalizations the teacher was not to tell them that they were wrong, but was to "trap" them by asking them to do examples in which the false generalization could be seen to be false.

The scale for "clarity" was defined more precisely than for discovery-learning and, therefore, was included in the high-inference teacher behaviour rating scale for the present study. Totals from FIAC categories 1, 2, and 3 may be compared with the total frequencies from categories 5, 6, and 7 to provide an indirect-direct ratio. It must be pointed out that low scores for clarity do not necessarily indicate a high incidence of inductive or deductive learning.

Ratings for clarity were completed for the teachers in the present study, thus allowing comparisons with the findings of Eggert (1977) and Blocksidge (1978).

Summary of Rationale

Research on teacher effectiveness dominated the first half of the twentieth century. No higher order theory has been constructed to account for teacher variables.

The Dunkin and Biddle (1974) model for the study of teaching was adopted for the present research. The framework included consideration of presage, context, process, and product data.

The underlying democratic-progressive thrust of the outdoor movement pointed toward three areas of preferred teaching characteristics, all of which overlapped the Dunkin and Biddle (1974) model. Relevant literature was examined in relation to the three foci: climate and directiveness, discipline and group management, and the classroom as a social system (ibid.).

The literature review revealed that research in "climate and directiveness" had confused warmth with directiveness. Various instruments and their mixed findings were examined in relation to this study. They included the low-inference FIAC, the high-inference HITB, the MTAI, and the CAQ. "Management and control" research for classrooms and outdoor settings was appraised with the revealed mixed results from HITB and FIAC. Research on the "classroom as a social system" was examined through qualitative writings in the naturalistic idiom. The design of the study and the procedures are presented in Chapter 3.

Chapter 3

DESIGN AND PROCEDURES

Overview

The main purpose of this study was to describe the behaviour of teachers and their students in classrooms and residential outdoor schools. The investigation was conducted within the framework of the Dunkin and Biddle (1974:38) model for the study of teaching which duly considered presage, context, process, and product variables.

Research Questions

The research questions posed in Chapter 1 follow the Dunkin and Biddle (1974) paradigm. Within the presage segment, data were collected on the formative and training experiences and the properties of the teachers. Within the context segment, the formative experiences and properties of students were documented along with data on the classrooms, schools, and communities. In the process segment, data on the classroom and outdoor teacher behaviour and student behaviour were documented before, during, and after outdoor school. In the product segment, student product data were collected before and after outdoor school.

The perceived outcome of the study was the "generation of hypotheses" as they emerged from data interpretation discussed in a later chapter.

Design, Sample, and Phases of the Study

The rationale for the study was based on a search of relevant literature. In the following section the design is outlined, the sample is stated, and the phases of the study are documented.

Design

The design was an exploratory descriptive study in a naturalistic setting. In Chapter 2 the rationale was examined through relevant literature in two organizing frameworks: the Dunkin and Biddle (1974:38) model for the study of teaching and the so-called "commitments" of outdoor education to "climate and directiveness," "discipline and group management," and "the classroom as a social system." The relationship between the two frameworks is shown in Figures 2, 3, 4, and 5 (illustrated later in this chapter). This study focussed on selected variables within each Dunkin and Biddle cluster. Because Eggert (1977:28) and his co-researchers had suggested that a relatively "small number of teachers and classes should be studied to permit extensive and intensive data collection," only four teachers were included in this research.

Sample

Each of the four teachers selected was responsible for one elementary classroom; that is, either Grade 4, 5, or 6. Each teacher was attending outdoor school with his/her own class for between three and five days. Observations were made on each teacher in each setting in order to note differences between the individual profiles assembled in different settings. From the outset, severe limitations existed which defied the application of randomness to the sample; for instance, the number of schools engaged in residential outdoor education was small. Furthermore, choice was limited by timing and the willingness of the teacher(s) to be part of the study.

Research proposals were presented to two administrative units of the Calgary Board of Education (which administers the Calgary public school system in the city of some 600,000 population). Both the Evaluation Unit and the Off-Campus Activities Unit agreed with the general intent of the study and promptly cooperated.

Schools. The source of research subjects was three elementary schools located in the Calgary urban school district. Approximate student enrolments were: (1) 450 students, kindergarten through Grade 6; (2) 350 students, K-9, and 149 in K-6; (3) 570 students K-6.

Teachers. The demographic data for the four teachers are presented in Table 1.

Students. The distribution of the resulting sample of 118 students is shown in Table 2.

Phases of the Study

The research encompassed seven distinct phases: (1) the selection of instruments and training in their use (schools not involved in the actual research were used for training purposes); (2) the familiarization period when the researcher spent time in the classrooms of the teachers who had volunteered for the study; (3) the collection of data prior to outdoor school; (4) the collection of data during outdoor school; (5) the collection of data after outdoor school; (6) the transcription of data; and (7) the follow-up period which allowed the researcher to share observations with individual teachers.

1. The researcher trained with the HITB rating instrument during two periods, each of six weeks. Frequent checks were made among the researcher, another trainee, and an established coder. The researcher trained with the FIAC instrument for six weeks during which time checks were made with the self-checking components of the Interaction Analysis mini-course, and an established coder. The additional data-gathering instruments were selected during this phase.

2. The researcher spent a familiarization period of

Table 1

TEACHER DEMOGRAPHIC DATA

Teacher	Degrees Held	Specialization	Experience (years)
A	B.Sc., M.Ed.	Mathematics, science counselling	16.5
B	B.P.E., B.Ed., M.A.	P.E., language arts, reading	10.0
C	B.Mus., B.Ed.	Music, drama, science	3.5
D	B.Ed.	Physical education	2.5

Table 2

DISTRIBUTION OF STUDENT SAMPLE BY SEX AND SCHOOL GRADE

School No.	School Grade			% Ratios	Totals
	4	5	6	Boys:Girls	
1	10	11	9	60:40	30
2	10	7	14	58:42	31
3	0	26	0	30:70	26
4	0	8	23	45:55	31
Totals	20	52	46		118

one week in each classroom. Two half-days were devoted to the following activities:

(a) Meeting the teachers and being introduced to the students;

(b) explaining the researcher's role as a visitor who was interested in seeing and recording teachers and students at work;

(c) pledging that the data to be collected were descriptive and not evaluative, and that, subsequent to the study, any information gathered was to be shared with the teachers before it was distributed elsewhere;

(d) talking with students informally, in general terms, about the research project;

(e) becoming familiar with the classroom routine;

(f) becoming familiar with students' names and usual seating allocation;

(g) administering the CAQ (see Appendix D);

(h) attempting to become established as being disassociated from the authority structure of the school board, the school, or the class.

3. Teacher and student process data were collected during the penultimate week prior to outdoor school. The two instruments--FIAC (low-inference data) and HITB rating scale (high-inference data)--were used to code up to three lessons. Both instruments were used with each lesson.

FIAC data were captured on audio-tape to be coded at a later date, while the HITB rating scale was administered live. Rating forms for 3-minute intervals on the HITB scale and 3-second timelines for FIAC are both reproduced in Appendix C.

Guidelines adopted for data collection were as follows:

(a) Total period of recorded observation in any one classroom to be six hours; that is, two hours before, two hours during, and two hours after outdoor school. Using two instruments concurrently, the amount of coded time resulted in a total of 12 hours (6 hours x 2) observation and coding per class.

(b) Observation of teacher and student behaviour was intended to be in three disparate topics including the following categories: mathematics/science, communications/ social studies, and informal or loosely structured time.

(c) Time spent in observation of the latter three categories reflected the range of content at outdoor school.

(d) Lesson periods of 40 minutes were used as units for coding with both instruments. (Teacher preferences and class timetables induced some deviations from these guidelines.)

Teacher presage data were obtained by administering the MTAI during a lunch-hour. One environment inventory was compiled during a one-hour period of observation in regular class. On a separate occasion, one entire day was spent with Teacher C and her class for the purpose of completing a descriptive record.

4. Teacher and student process data were collected during outdoor school. The two instruments--FIAC and HITB rating scales--were used concurrently to code up to three lessons in a manner similar to Phase 3. Owing to the nature of outdoor school and teacher preferences it was difficult to observe and code lessons in each of the categories suggested in Phase 3, but similar time periods were spent with each teacher. An environment inventory was completed at a separate time period. One full day was devoted to a descriptive record compiled for Teacher C and her class. The descriptive records for Teacher D were completed in a 5-day period totalling 70 hours.

5. Teacher presage data were collected during lunchtime using the Lumby Outdoor School Study (LOSS) (1979) and the Outdoor Education Opinionnaire for Teachers (OEOT) (Brekke, 1977). Teacher and student process data were collected in a format similar to Phase 3. FIAC and HITB scales were used concurrently in lessons from established categories. Phase 3 guidelines were generally followed in Phase 5. Teacher presage data and student product data were gathered for the second applications using the MTAI and the CAQ, respectively. Teachers were asked to rate themselves on the HITB rating scale.

6. All observations were converted into tabulated data.

7. During the follow-up phase the researcher met with the teachers and shared the information assembled during the previous weeks.

A summary of the seven phases is shown in Table 3. The foregoing schedule (excluding the selection and training phase) was conducted over an 8-week period for each teacher. For teachers A, B, and C, a combined total of 24 weeks was required for the study. Teacher D required three weeks.

Data Sources, Training, and Data Collection Procedures

Outlines of all data sources for the study are shown in Figures 2, 3, 4, and 5. The research instruments (with one exception) are reproduced in the appendices. Detailed descriptions of the instruments, training procedures, and reliability data are provided below.

Presage-Process Data

Instruments in this segment document teacher characteristics, teacher properties, and teacher classroom behaviour.

Part I: Lumby Outdoor School Study (LOSS). This instrument (see Appendix A) was based on the teacher data form designed by Blocksidge (1978). The form was not

Table 3

SUMMARY OF THE SEVEN PHASES OF THE STUDY, BY TEACHER AND NUMBER OF HOURS

				Approx. No. Hours		
Teacher	Week No.	Phase	Purpose	Researcher	Teacher	Student
--	Pre-study period	1	Selection & training with FIAC & HITB	40	0	0
A,B,C	1	2	Familiarization and CAQ	4	3	4
A,B,C	2	3	Live & audio coding prior to O.S.*	3	3	3
A,B,C	3	3	Administer MTAI	1	1	0
A,B,C	3	3	Complete environment inventory	1	1	1
C	3	3	Complete descriptive record (1 teacher)	7	7	6
A,B,C	4	4	O.S., live and audio coding	3	3	3
A,B,C	4	4	Complete environment inventory	1	1	1
C	4	4	Complete descriptive record (1 teacher)	14.5	14.5	14.5
D	4	4	Descriptive records (1 teacher)	70	70	35
A,B,C	5	5	Live & auto-coding post-O.S. school	3	3	3
A,B,C	5	5	Complete LOSS & OEOT	2	2	0
A,B,C	6	5	Administer MTAI	1	1	0
A,B,C	6	5	Administer CAQ	1	0	1
A,B,C	6	5	Administer HITB	0.5	0.5	0
--	7	6	Transcription	110	0	0
A,B,C	8	7	Follow-up w/teachers	2	2	0
Totals				264	112	71.5

*O.S. = Outdoor School

Teacher	Research Focus	Source of Data	Instrumentation	Quantification	Quantitative Statements
A,B,C	Climate & Directiveness Management & Control	Presage-Process data Teacher formative & training experiences	LOSS & OEOT	None	Descriptive statement on each teacher
A,B,C		Teacher classroom behaviour	HITB Rating Scale	Mean ratings in 8 categories	None
			FIAC System	Percentage of frequencies in categories 1 through 7	None
A,B,C		Teacher properties	MTAI	Percentile ranking	None

Figure 2

Data Sources and Analyses for
Presage-Process Segments

Teacher	Research Focus	Source of Data	Instrumentation	Quantification	Quantitative Statements
A,B,C	The Classroom as a Social System	Context-Process data			
		Student Characteristics	School Records		
		- academic	School Records	Class mean scores	None
		- sex	School Records	Ratio boys:girls	
		- age	School Records	Percentage of age groups	
A,B,C		Student behaviour	FIAC System	Percentage of frequencies in categories 8 & 9	None
A,B,C,		Classroom context	Environment inventory	None	Similarities /differences
C		Teacher and student behaviour in context	Ethnographic record	None	Anecdotal records/log of prominent scenes
D		Teacher behaviour in context	Descriptive record	Behaviour setting by hour, day, week	Anecdotal records

Figure 3

Data Sources and Analyses for Context-Process Segments

Teacher	Research Focus	Source of Data	Instrumentation	Quantification	Quantitative Statements
A,B,C	Climate & Directiveness Management Control	Process Data	HITB Rating Scale	Mean ratings in 8 categories	None
		Teacher classroom behaviour	FIAC System	Percentage of frequencies in categories 1 - 7	None
A,B,C		Student classroom behaviour	FIAC System	Percentage of frequencies in categories 8 & 9	None

Figure 4

Data Sources and Analyses for Process Segment

Teacher	Research Focus	Source of Data	Instrumentation	Quantification	Quantitative Statements
A,B,C	Climate and Directiveness	Product Data Student perceptions of teacher behaviour	CAQ	Mean ratings of 20 variables	None

Figure 5

Data Sources and Analyses for Product Segment validated and the information reported was dependent upon the memory of the respondent. A questionnaire seemed to be the most expedient means for eliciting teachers' data for such variables as age, sex, and experience.

Part II: Outdoor Education Opinionnaire for Teachers (OEOT). This instrument (see Appendix A), devised by Brekke (1977) for an M.Ed. thesis, comprised a rating for each of several questions designed to elicit outdoor education opinions held by teachers in Whitehorse, Yukon Territory. The form probes the opinions of teachers about some of the features of the meso- and exo-environments mentioned by Bronfenbrenner (1976).

Minnesota Teacher Attitude Inventory (MTAI). This instrument was devised by Cook et al. (1951) to measure teacher attitude to teacher/student relationships. The respondent makes selections on a 1 - 5 continuum and records his choices on an IBM sheet.

> The MTAI is designed to measure those attitudes of a teacher which predict how well he will get along with pupils in inter-personal relationships, and indirectly how well satisfied he will be with teaching as a vocation. (ibid.)

The reliability and validity of the instrument was reported by the authors. They claimed split-half reliability of .93 and retest reliability of near .70. Validation studies included correlation coefficients of .60 and .59. Student ratings included correlation coefficients of

.60 and .59. Student ratings correlated with MTAI scores in three separate studies: r = .45; 4 = .46; and r = .31.

Although originated 30 years ago, the test was considered valid for comparing teachers in the present study with the published norms relative to the democratic-autocratic continuum.

High-inference Teacher Behaviour Rating Scale. The eight-category instrument (HITB) (Appendix C) was developed from three sources--Kounin, Carkhuff, and Truax (in Eggert, 1977). As a single instrument it has been used in three studies--Marland (1977), Eggert (1977), and Blocksidge (1978). Marland reported little discrimination between six teachers in his study. Eggert (1977:175) found that:

> Scales developed for the measurements of withitness, overlappingness, smoothness, and momentum (Kounin, 1970) have demonstrated high reliability when used in a variety of classroom contexts. The classroom management skills appear to be important for ensuring positive attitudes and productive pupil behaviours.

Eggert (1977) also concluded that personal warmth, persuasiveness, and clarity were positive influences in learning. Only one of eight variables in the instrument that seemed to be out of place was "accurate empathy" which was seldom displayed by teachers. The present researcher elected to retain the variable because of the close interpersonal nature of outdoor schools.

It was important to test the reliability of the scales in the outdoor setting inasmuch as Blocksidge (1978) had found the setting appeared to influence the behaviour of the three teachers in his study, albeit in an inconsistent fashion.

Rater training and procedures. Training consisted of approximately 12 hours of discussion for the purpose of meaning clarification. The rating scales were practiced on 12 teachers at varying grade levels in schools other than those selected for the study. Training persisted until 80% agreement was achieved.

Four ratings were taken on the first four management scales every four minutes. One minute was allowed between ratings for contemplation and recording. The second four variables were rated every four minutes, each with a minute for recording. The entire process took 40 minutes. In the case of a 30-minute lesson, three ratings in each of the eight variables were completed. The three or four ratings were averaged for each variable. The mean ratings were then used for inter-coder reliability checks when two or more raters were present, and later for obtaining the teacher's over-all mean ratings to be used for data analysis (see example Rating Sheet in Appendix C).

Inter-rater agreement was calculated using percentage agreement (pa) among the three raters by means of the following formula:

$$pa = [(1 - \frac{R_H - R_L}{4}) \times 100]\%$$

where R_H and R_L are the highest and lowest ratings, respectively, on any one variable during any one period of observation, and 4 is the maximum difference possible on a 5-point rating scale. Tables 4 and 5 show the intercoder reliability figures obtained during training.

Blocksidge (1978) noted that the eight global qualities of the HITB instrument failed to identify particular behaviour associated with any of the qualities, and recommended that a low-inference category system be used in order to pinpoint operative behaviour associated with general qualities. In an attempt to complement the high-inference instrument, a low-inference category system has been supported by Rosenshine and Furst (in Travers, 1973), Blocksidge (1978), and McConnell and Bowers (1979).

This low-inference category system was developed by Flanders from work by H. H. Anderson (1939), Lewin, Lippitt, and White (1939), and Withall (1948). While not perfect, the system has been used by many researchers other than Flanders. FIAC is a verbal interaction category coding instrument which has been used, since it was initially developed in 1957, to provide feedback to teachers and student teachers. The original, 10-category system has been modified by many researchers, including Flanders himself who has encouraged such refinements. The instrument principally provides low-inference frequency counts in seven categories of teacher talk, two of student talk, and one of

Table 4

PERCENTAGE AGREEMENT OF INTER-RATER RELIABILITY MEASURES ON HITB FOR ONE TRAINER AND TWO CODERS

	Trial 1, Grade 1 Teacher			Trial 2, Grade 3 Teacher			Trial 3, Grade 3 Teacher		
Variable	Trainer	Trainer	Coders	Trainer	Trainer	Coders	Trainer	Trainer	Coders
Withitness	75.0	62.5	40.0	85.0	92.5	92.5	82.5	100.0	82.5
Overlappingness	90.0	100.0	90.0	95.0	80.0	75.0	100.0	92.5	92.5
Smoothness	92.5	82.5	75.0	97.5	62.5	65.0	82.5	92.5	75.0
Momentum	67.5	100.0	67.5	87.5	62.5	75.0	82.5	67.5	50.0
Clarity	80.0	67.5	87.5	82.5	100.0	82.5	95.0	70.0	65.0
Persuasiveness	82.5	100.0	82.5	87.5	87.5	100.0	90.0	92.5	82.5
Warmth	82.5	100.0	82.5	80.0	97.5	92.5	75.0	82.5	92.5
Empathy	40.0	50.0	90.0	92.5	100.0	92.5	75.0	82.5	92.5

HITB = High Inference Teacher Behaviour

Table 5

PERCENTAGE AGREEMENT OF INTER-RATER RELIABILITY
MEASURES ON HITB FOR TWO CODERS

	TRIALS								
Variable	1	2	3	4	5	6	7	8	9
Withitness	82.5	100.0	75.0	82.5	100.0	82.5	100.0	87.5	90.0
Overlappingness	85.0	82.5	65.0	85.0	92.5	100.0	82.5	85.0	90.0
Smoothness	92.5	92.5	85.0	67.5	85.0	100.0	67.5	82.5	92.5
Momentum	82.5	75.0	75.0	92.5	92.5	75.0	82.5	92.5	92.5
Clarity	92.5	57.5	67.5	90.0	100.0	100.0	92.5	90.0	82.5
Persuasiveness	100.0	90.0	82.5	85.0	100.0	90.0	85.0	100.0	90.0
Warmth	100.0	100.0	82.5	100.0	90.0	82.5	92.5	100.0	92.5
Empathy	85.0	92.5	100.0	75.0	100.0	75.0	95.0	87.5	95.0

HITB = High Inference Teacher Behaviour

silence or confusion. Flanders (1965:2) explained that the model was "based on a psychology of superior-subordinate relationships, adapted to fit classroom conditions." It was used in the present study to provide frequency percentages which may be associated with mean ratings from the high-inference teacher behaviour rating instrument for the same lesson.

FIAC was categorized by Rosenshine and Furst (in Travers, 1973:141) as being "derived from implicit research or theory." Flanders (1974) referred to both theory and research in interpersonal relations. Design features of the expanded system subdivide most categories, thus permitting shades of meaning to be found in the frequency counts. The "timeline" permits the recording of dyadic sequences which reveal patterns of interaction.

Rosenshine and Furst (in Travers, 1973:146, 155) claimed that FIAC, along with other category systems, "cannot be validated on the basis of their sources [and that it] has been used by both the author and other investigators in correlational and experimental studies." Correlational studies of specific variables or indirect/direct ratios showed that:

> Significant results were seldom obtained but positive correlations favouring "use of student ideas" were found in seven of eight studies (rs = 0.17 to 0.40), and positive correlations favouring a higher indirect/direct ratio were found in eleven of thirteen studies (rs - 0.12 to 0.51). (ibid.:168)

Reliability may be perceived in more than one way. Flanders, Werner, Elder, Newman, and Lai (1974) used audio-taped lessons to achieve 80% agreement among coders. Medley and Mitzel (in Gage, 1963) claimed that observers using FIAC were trained until Scott-derived coefficients were in excess of r = .85. Owing to the presence of the observer, reliability for individual teachers across visits may well be low. Rosenshine and Furst (in Travers, 1973:169) reported low correlation coefficients for the few single-teacher studies available (rs = 0.0 to 0.70).

Coder training was accomplished through the use of the "mini-course kit" compiled by the Teacher Education Division, Far West Laboratory, San Francisco (Flanders et al., 1974). The full course, including written and audio material, was completed in the training period of four weeks, during which time approximately 40 hours were devoted to the exercises and checks until 80% agreement was reached. Taped lessons from three teachers (not part of the study group) were used for practice coding.

Lessons were audio-taped in their entirety and later (usually the same day), the researcher coded them in all 10 categories. The timeline permitted a check on time. At the recommended rate of one judgment every three seconds, the complete timeline for a 30-minute lesson accounted for approximately 600 entries. The consistency for those entries was checked independently at a later date, at which time 80% agreement was used as the criterion for acceptance.

Inter-coder agreement was calculated using percentage agreement (pa) between two coders, or the same coder with himself at a different time, by means of the following formula:

$$pa = [(1 - \frac{R_H - R_L}{100}) \times 100]\%$$

Inter-coder agreement checks were difficult to obtain owing to the scarcity of FIAC trained coders. The external coding check resulted in the attainment of a satisfactory level of agreement.

Context-Process Data

Instruments in this segment documented student characteristics, student behaviour in classrooms, contextual features, and a means of describing a week in the life of a classroom teacher at outdoor school.

Student characteristics. The school records were searched for data on age, sex, and school grades of the observed classes. Academic standings were ascertained through the well-documented records held in the Program Evaluation Unit of the Calgary Board of Education. The classes were compared with others at the same grade level, same school, and total school system. Test results used were the Canadian Cognitive Abilities Test (E. N. Wright, 1974), which included a verbal and non-verbal component, the Canadian Test of Basic Skills (King, 1976), which revealed vocabulary and reading comprehension, and the Stanford Mathematics Test (Madden, Garner, Rudmen, Karken, & Merwin, 1972), which considered concepts, computations, and application. The well-referenced measures in mathematics and reading were felt to be clear indicators of class academic standing. Student verbal behaviour (for Cats. 8 and 9) was obtained from the FIAC coding procedure outlined earlier.

Environment inventory. The environment inventory has not been validated but it was designed to record environmental features recognized by the researcher (Lumby, 1979). Features included time of day, date, school organization or classes/school, air conditions (for example, temperature, humidity, movement, lightning), ground cover, walls, ceiling, "behaviour setting," behaviour objects, standing patterns of behaviour, age, sex, timetable before, during, and after. A floor plan was drawn for each setting.

Ethnographic record. In an effort to amplify the outdoor school phenomenon, the investigator made observations in addition to those listed above. The instrument (see Appendix B) has not been validated but the format is one suggested by Johnson and Gardner (1979) in a paper entitled "Toward a Prototype for Training Classroom Ethnographers." The aim of such an approach was an attempt to capture the essence of both regular school and outdoor school. Two descriptive records were collected: (1) one whole day in school prior to outdoor school, from 8:30 am to 3:15 pm; (2) one whole day at outdoor school, from 7:00 am to 9:30 pm.

These data were meant to record features of the "whole" picture whereas the two interaction analyses sampled particular aspects of the "class in action." From the two specimen days a "log of prominent scenes" (Gump, Schoggen, & Redl, 1963:172) was compiled for school and outdoor school. There was a difference in starting and finishing times between the two settings, but with interest centred on the total class little could be done to monitor the whole class before 8:30 am or after 3:15 pm during regular school. The intent was to record the impact of the two environments on the class by means of episodic recording.

Reliability and validity were entirely dependent on the single observer-cum-researcher in both milieus. Wolcott (1975:114) supported the use of a single observer: "Do not make or let other people do your field work." Furthermore, he supported studies with an ethnographic intent wherein the observer enjoys the "luxury of a broad look around to assess for himself the problems that could be studied" (ibid.:113). A limitation of the single enquirer is that preconceived notions may prevail.

Descriptive records were maintained for Teacher D.

The records comprised detailed notes on the teacher's behaviour and behaviour settings for 70 hours during a 5-day outdoor school.

Process-Product Data

The instrument in this segment documented students' perceptions of teacher behaviour.

Classroom Atmosphere Questionnaire (CAQ). The simplicity and ease of administration recommended the use of the CAQ (Hoffmeister, 1971) with Grades 4, 5, and 6 children in elementary school. Split-half reliability varied from .89 to .94 depending on the measure and the sample. The reviewer urged caution when drawing conclusions because of the lack of information regarding the instrument development procedures. Score inflation was apparent with a mean of 4.0 from the potential range of 1.0 to 5.0. No validation data were available, but comparison with the observation instruments offered a validity check (Buros, 1978).

Data Analysis

This research may be viewed as a descriptive study of classroom teachers at outdoor school. In an attempt to make a clear, comprehensive analysis of the data gathered, the findings are presented separately for each teacher. A summary and suggestions for further investigation was as far as this study was intended to go.

Altogether, four teachers and their classes were studied. Teachers A and B not only taught at the same school but also shared the same block (that is, a semi-open, double classroom area with 61 students who were grouped in various combinations). Because a descriptive record for this teacher duo was difficult to compile, owing to the constraints of time and timetables, no record was maintained for them. Teacher D was not subjected to any of the observational instruments but was followed by the observer all day, every day, during outdoor school. The description of Teacher D took a narrative form.

With the exception of the descriptive record, Teachers A, B, and C shared the common descriptive paradigm which formed the framework for analysis outlined in Figures 2, 3, 4, and 5. Summaries are presented later in quantitative tables and qualitative statements. Readings taken before, during, and after outdoor school are shown, as well as changes in mean ratings and percentage frequencies. Written descriptions are also provided of the similarities and differences between the two settings based on "descriptive record" observations.

Limitations and Expectations

Both limitations and expectations were raised in the preliminary stages of this research.

Limitations

Four obvious limitations were:

1. The small number of teachers (four) and the sampling procedure (non-randomness) reduced the power of generalization.

2. Using and refining the instruments in novel, albeit exciting, environments limited the reliability of the ratings. In regular school the classes remained in one room, but at outdoor school the classes moved over a variety of terrain.

3. It was necessary to describe each teacher and class irrespective of others in the study because of the variability of many factors.

4. All data were gathered by a lone researcher who had a declared bias in favour of outdoor education.

Expectations

Almost every school system in Canada and the USA sends at least one class to outdoor school every year. Time, effort, and extra funds are used to support these ventures. Subsequent evaluations from children, teachers, and parents have indicated that the experience was meaningful and enjoyable. Well-documented studies of the worth of outdoor school are scarce and the shortcomings of research in outdoor education are numerous. Live coding of teaching events at outdoor schools are scattered, and descriptions of how participants interact in such an environment are few.

This study was intended to be exploratory and descriptive of outdoor school in an attempt to uncover more of the unique and key variables which, hitherto, have been described in vague but glowing rhetoric.

Chapter 4

RESULTS AND DISCUSSION

Introduction

In this chapter, the data collected with various instruments are presented for each teacher and class. It was not intended that comparisons be made between teachers; therefore, each teacher and class unit are discussed separately following the Dunkin and Biddle (1974:38) research paradigm. Presentation of the data is made in two parts. Part I includes separate profiles for Teachers A, B, and C. An additional dimension of "a day in the life of an outdoor school teacher" is presented for Teacher C. Part II includes the descriptive records for Teacher D with the presentation of "a week in the life of an outdoor school teacher."

Part I Data

Part I results are presented in the following data segments: presage, teacher process, presage-process, context, student process, context-student process, teacher process-student process, and product. Within each segment, data are reported and results are stated and discussed in light of the literature cited in Chapter 2, which focussed on climate and directiveness, management and control, and the classroom as a social system. Segment data are presented in the following order:

Presage Data

1. Formative experience
2. Teacher training experience
3. Teaching experience

{ Lumby Outdoor School Study Questionnaire (LOSS) (1979)

4. Teacher properties
   - (a) Outdoor Education Opinionnaire for Teachers (OEOT) (Brekke, 1977)
   - (b) Minnesota Teacher Attitude Inventory (MTAI) (Cook et al., 1951)

Teacher Process Data

- (a) High Inference Teacher Behaviour Rating Scale (HITB) (Eggert, 1977)
- (b) Flanders Interaction Analysis Category System (FIAC) (Flanders et al., 1974)

Presage-Process Data

A summary is provided for each teacher.

Context Data

1. Student formative experience
   - (a) Sex (b) Age (c) Grade { School Records 1979-1980
2. Student properties
3. School and community contexts (estimated)
4. Classroom context (Environment Inventory) (Lumby, 1979)

Student Process Data

1. Student behaviour

   (a) Flanders Interaction Analysis Category System (FIAC) (Flanders et al., 1974)

Context-Student Process Data

A summary is provided for all students.

Teacher Process-Student Process Data

A summary is provided for combined results.

Product Data

(a) Classroom Atmosphere Questionnaire (CAQ) (Hoffmeister, 1971)

Teacher A

Presage Data

Presage data include the teacher's formative, training, and teaching experience, and teacher properties. This segment is one of four in the model (see Figure 1, page 8) for studying teaching, devised by Dunkin and Biddle (1974). The LOSS (Lumby, 1979) instrument was used to gather the data.

1. Formative Experience

Age: 39 years   Sex: male

Personal school experience related to O.E: nil

Full-time jobs other than teaching: nil

Part-time jobs related to O.E.: Two consecutive summers as section director at a boys' camp

This male teacher was in mid-teaching life.

Although there was an absence of outdoor education in his personal schooling, he had spent two summers directing a boys' camp.

Teacher A's experiences as a camp director were seen as a positive influence in taking his class to outdoor school. There were no other influences which could be interpreted as influential on his disposition toward outdoor education.

2. Training Experience

Degrees: B.Sc., 1962; Major, mathematics and science
Teaching diploma, 1963
M.Ed., 1971; Major, guidance and counselling
Programs/courses in O.E.: nil

Some of Teacher A's training experience had no obvious bearing on outdoor education and was considered irrelevant. Science and guidance/counselling were, however, viewed as subjects which could be aligned with outdoor education content or methods. There was no evidence of formal training in O.E. but the teacher had studied science which has potential for field trips, thus providing a link with O.E. Furthermore, his guidance/counselling studies, by their very nature, imply an understanding of human nature. Outdoor school is claimed to be a setting in which teachers and students become acquainted with each other as persons.

During the early years of outdoor education, science was seen as one of the founding disciplines (W. M. Hammerman, 1980). Early proponents claimed that it was difficult to teach science without resort to the real world (Sharp, 1952; J. W. Smith et al., 1972). Current curricula cite opportunities for teaching outdoors. It was considered likely, therefore, that Teacher A had been exposed to outdoor methods for teaching science.

While guidance per se was not perceived as an outdoor subject in itself, the interpersonal values of outdoor education have been extolled by many writers such as Sharp (1952), J. W. Smith et al. (1972), and W. M. Hammerman (1980). The inference may be taken that Teacher A was disposed to consider opportunities for "counselling" should they have arisen.

During the 50-year history of outdoor education, the plea has been made for courses in O.E. at post-secondary institutions (W. M. Hammerman, 1980:99). Be that as it may, Teacher A, as a recent graduate of teacher preparation, did not report any outdoor education courses in his training experience.

3. Teaching Experience

Teacher A's experience (see below) related to O.E. included five years of annually planning and implementing an O.E. program in Montreal elementary schools. In addition, he served on an O.E. planning committee for his present school.

Type of School Taught	Level	No. of Years	Subjects
Sr. High	Grades 8-11 incl.	6	Algebra, geometry, physics guidance
Elem.	Principal, K-8 inclusive	7	--
Elem.	Grades 5 & 6	2	Math., science, soc. studies
Elem.	Grades 4, 5, & 6	1.5	All subjects except phys. ed., science, art, music

Teacher A's past experience in planning and implementing an O.E. program was viewed as a feature which supported his continued interest in outdoor programs. His experience as a guidance counsellor was seen as conducive to the interpersonal nature of outdoor school. Among other subjects, he had taught science and social studies, two subjects which have been closely aligned with O.E. methods.

The foregoing revealed a significant number of years spent in planning and implementing O.E. Northway and Lowes (1963:79) suggested that: "There is a magic about camping. It gets into your blood, and you cannot get it out." Teacher A had developed an affinity for O.E. in schools as a teacher/administrator rather than through teacher training experiences.

4. Teacher Properties

(a) The OEOT (Brekke, 1977)

The OEOT focussed on the teacher's perception of the factors which influenced his involvement in outdoor education and his recommendations for O.E. at various levels of schooling. The self-reporting instrument was categorized and reported with mean average responses and/or written comments as appropriate. Teacher A's responses are summarized in Table 6.

Teacher A's responses here appeared to indicate a support for outdoor education. His previous familiarity with outdoor programs as an administrator had enabled him to formulate objectives readily as well as to design and implement O.E. programs. On-the-job experience had evidently influenced him much more than books or formal courses. He recognized the fact that university courses were useful in familiarizing teachers with the O.E. process. He had willingly undertaken the O.S. project in concert with his colleagues. Furthermore, he planned two additional days in outdoor activities for the same school year. He rated the value of outdoor education as "high" and was committed to it. He felt that O.E. programs should exclude Grade 4 children (who were in his class--a multigrade room) because he thought them "too young" to benefit from the experience.

(b) The MTAI (Cook et al., 1951)

The MTAI places teachers on an "autocratic democratic" continuum. The test's author provided answers and

Table 6

TEACHER A: RESPONSES TO OEOT

Category and Description	Mean Response	Response Range	Response Descriptors*
A. Difficulty of identifying and implementing outdoor education	4.2	1-5	Relatively to extremely easy
B. Influencing factors:			
1. Awareness of books or courses	2.5	1-4	None or small influence
2. Assistance or encouragement from school or government	3.0	1-4	Some assistance
3. Decision to offer O.S.	-	-	Collectively/ self & others
Previous experience with O.E.	-	-	Yes
Annual days planned	-	-	7
4. Plans to continue with O.E.	-	-	Yes
C. Value of outdoor education	4.7	1-5	Agree to strongly agree
D. 1. Suggested grades for O.E.	-	-	Grades 5, 6, 7 and 8
2. Suggested days and grades for O.E.	-	-	K - 4 days 3 - 4 days 6 - 10 days 9 - 10 days 12 - 10 days
E. Teacher familiarization source(s) suggested	-	-	1. Workshops (local) 2. University courses 3. Model units

*OEOT: Outdoor Education Opinionnaire for Teachers

norms which indicated that responses were "correct" for democratic views and "incorrect" for autocratic views, based on the belief that democratic teachers, as measured by the scale, were better teachers. The MTAI was administered to the teacher prior to and following outdoor school.

On the first administration of the MTAI, Teacher A gave 101 "correct" and 35 "incorrect" responses for a net score of 66 (prior to O.S.). He had been teaching in elementary schools for about ten years but, prior to that time, his preparation and early teaching had been in secondary schools. Percentile ranking for both secondary and elementary schools are considered. Compared to the standardized norm for academic secondary school teachers with five years of training, he stood at the 73rd percentile; for elementary school teachers with four years of training in a school system of 21 teachers or more, he stood at the 56th percentile. Following O.S., the second administration of the MTAI resulted in a reduced score for Teacher A; that is, his corresponding percentile rankings were 61st and 45th, respectively.

In reviewing the MTAI, Cronbach (in Buros, 1978: 798) concluded that experienced teachers as a group could be expected to reveal stable results. Teacher A's results did differ, and would suggest that he was not as open-democratic as are between 44% and 56% of other elementary teachers with similar qualifications and experience.

J. W. Smith et al. (1972:29) and D. R. Hammerman and W. M. Hammerman (1973:362) advocated an open-democratic model of teacher behaviour in outdoor education. If one were to presume that superior outdoor teachers were in the upper quartile of a scale like MTAI, Teacher A would not compare favourably. The higher ranking for Teacher A when compared to secondary school teachers might reflect his preparation and early experience. It is interesting to note that Teacher A thought the MTAI to be "dated" and expressed exasperation with it several times during both administrations.

Teacher-Process Data

(a) HITB (Eggert et al., 1977)

HITB was designed as a high-inference rating scale for eight teacher qualities (variables): withitness, overlappingness, smoothness, momentum, clarity, persuasiveness, warmth, and empathy.

HITB data for Teacher A are shown in Table 7 which contains mean average ratings pre-, during, and post-outdoor school, as well as mean average ratings for the academic sessions, all sessions, and the teacher's self-ratings. The important difference was viewed as that between the ratings for the outdoor phase and the other two phases.

Six variables--withitness, overlappingness, smoothness, momentum, persuasiveness, and empathy--received

Table 7

TEACHER A: HITB AVERAGE MEAN RATINGS

Variable	Cat.	Pre- O.S. $\bar{X}$	During O.S. $\bar{X}$	Post- O.S. $\bar{X}$	(acad.) Pre/ Post $\bar{X}$	Over- all $\bar{X}$	TSR
Withitness	Management	3.9	2.8†	4.7*	4.3	3.8	2.0
Overlappingness		4.6*	4.3†	4.4	4.5	4.4	4.0
Smoothness		3.5	2.6†	3.7*	3.6	3.3	3.0
Momentum		4.0*	2.9†	2.9†	3.5	3.3	4.0
Clarity	Instructional	4.2†	4.3	4.4*	4.3	4.3	4.0
Persuasiveness		4.5*	3.4†	4.3	4.4	4.1	4.0
Warmth	Interpersonal	4.1	4.5*	3.5†	3.8	4.0	4.0
Empathy		3.1	2.3†	4.0*	3.6	3.1	3.0

*highest

†lowest

HITB: High Inference Teacher Behaviour Rating Scale

TSR: Teacher Self-Rating

comparatively lower ratings during outdoor school than pre-O.S. Two variables--clarity and warmth--were rated comparatively higher during O.S. than pre-O.S. Four variables--overlappingness, momentum, persuasiveness, and warmth--received comparatively lower ratings post-O.S. than pre-O.S. Four variables--withitness, smoothness, clarity, and empathy--received comparatively higher ratings post-O.S. than pre-O.S. Six variables--withitness, overlappingness, smoothness, clarity, persuasiveness, and empathy--revealed comparatively higher ratings post-O.S. than during outdoor school.

Differences were noted in all variables with the exception of "momentum" where ratings were identical during and post-O.S.

Table 7 shows that the mean ratings of teacher management categories were:

Variable	Highest	Lowest
Withitness	Post-O.S.	During O.S.
Overlappingness	Pre-O.S.	During O.S.
Smoothness	Post-O.S.	During O.S.
Momentum	Pre-O.S.	During/Post-O.S.

The ratings for the teacher management categories may have reflected the differences between the classroom and outdoor school. The pre- and post-O.S. ratings were made during classroom situations where children were essentially "deskbound" while the O.S. ratings were obtained in "un-classroom-like" settings (for example, campfire/cooking; a walking tour/study of a small town). On the other hand, pre- and post-O.S. differences in these categories revealed overlappingness and momentum to have declined while withitness and smoothness improved. In an attempt to account for changes, one might postulate that O.S. may have enabled Teacher A to increase his ratings for withitness and smoothness but decrease his ratings for overlappingness and momentum. In his study of three teachers, Blocksidge (1978) found that the mean average rating for the four variables was highest during O.S., whereas the present study showed that during O.S. the teacher was rated lowest.

Table 7 also shows that Teacher A fluctuated in the instructional categories:

Variable	Highest	Lowest
Clarity	Post-O.S.	Pre-O.S.
Persuasiveness	Pre-O.S.	During O.S.

The variation in these categories may have reflected the differences between the classroom and O.S. The lower rating during O.S. may reflect the style of teaching associated with the outdoors; that is, less "direct." The variation in the rating of clarity and persuasiveness may be attributed to the intervention of O.S. or it may simply have reflected the ratings for the teacher on the chosen days.

In his study of three teachers pre-, during, and post-outdoor school, Blocksidge (1978) found that the mean average rating for clarity was highest afterwards and lowest before and during the outdoor experience which was similar to the present study findings. Blocksidge's ratings for persuasiveness were contrary to the present study, with the highest rating during and the lowest prior to outdoor school.

As the Table 7 data show, Teacher A fluctuated in interpersonal skills:

Variable	Highest	Lowest
Warmth	During O.S.	Post-O.S.
Empathy	Post-O.S.	During O.S.

The variation in ratings for these categories also may have reflected the differences in settings. Outdoor education writers (J. W. Smith et al., 1972:30) have claimed increased opportunities for teacher warmth at outdoor school. The claim was substantiated by the ratings for the three teachers in Blocksidge's (1978) study. The equally stated claim for increased opportunities during O.S. for teacher empathy was not supported by the data collected in the present study which coincided with Blocksidge's (1978) findings.

With respect to teacher self-ratings, discrepancies were found between the mean average rating recorded by the observer and the rating which the teacher gave himself (Table 7). In six variables, Teacher A's self-ratings were lower than the observer's. In the two exceptions, he rated himself higher in momentum but equal in warmth. Insofar as a value judgment may be made, Teacher A held a modest opinion of himself in the rated variables.

In summarizing the results of the eight HITB variables, it may be noted that during outdoor school the teacher was rated lower in six variables--withitness, overlappingness, smoothness, momentum, persuasiveness, and empathy--compared with the mean average ratings given prior to and after outdoor school. Clarity and warmth were rated higher during outdoor school.

(b) The FIAC (Flanders et al., 1974)

The FIAC reflects the proportion of teacher and student talk in 10 categories. Reported data are shown in Tables 8 and 9. Flanders' general rule for teacher talk was not revealed in Teacher A at any time. Instead of the normal two-thirds, this teacher spoke for an average of 82.1% of frequencies, which was unusually high. In the light of outdoor education literature, some noteworthy data are apparent in Table 8.

Category 4 included teacher questions. Frequency counts indicated most questioning took place post-O.S. and least frequently during O.S., while the period prior to the O.S. was midway between the two extremes. These data are interesting because a "questioning" style of teaching is often associated with teaching outdoors (D. R. Hammerman & W. M. Hammerman, 1973:359).

Category 5 included the teacher lecturing, and here

Table 8

TEACHER A: PERCENTAGE FREQUENCY DISTRIBUTION OF LESSONS USING FIAC

Category and No.	Language Arts			Outdoor School			Mathematics			Pre- $\bar{X}$	Post $\bar{X}$	All Academ.	All Six Sessions $\bar{X}$
	Pre-	Post	$\bar{X}$	Cook	Town	$\bar{X}$	Pre-	Post	$\bar{X}$				
All Student Talk	25.5	18.5	22.0	21.5	15.4	18.5	12.7	12.1	12.4	19.1	15.3	17.2	17.9
All Teacher Talk	74.5	81.5	78.0	78.5	84.6	81.5	87.3	87.9	87.6	80.9	84.7	82.8	82.1
1. Teacher accepts feelings	00.5	00.4	-	01.2	02.1	01.6	01.2	00.3	-	00.9	00.3	00.6	-
2. Teacher praises	02.7	02.5	-	03.8	02.7	03.3	03.9	01.5	-	03.3	02.0	02.7	-
3. Teacher accepts or uses ideas	13.4	09.0	-	06.5	06.6	06.6	03.7	03.5	-	08.5	06.2	07.4	-
9. Student talk initiation	23.6	16.9	20.3	18.0	09.0	13.5	08.0	08.5	08.3	15.8	12.7	14.3	-
4. Teacher questions	11.2	15.7	-	12.9	10.9	11.9	14.6	11.2	-	12.9	13.4	13.2	-
8. Student talk response	01.9	01.6	01.7	03.5	06.3	04.9	04.7	03.6	04.2	03.3	02.6	02.9	-
5. Teacher talk lectures	41.8	50.5	-	43.9	55.3	49.6	50.7	62.3	-	46.3	56.4	51.3	-
6. Teacher gives direction	02.1	00.8	-	05.7	04.2	05.0	07.6	03.9	-	04.8	02.4	03.6	-
7. Teacher criticizes & justifies	02.9	02.5	-	04.5	02.7	03.6	05.1	05.3	-	04.0	03.9	04.0	-
0. Silence or confusion	02.3	04.4	-	16.6	05.2	10.9	31.4	10.6	-	16.9	07.5	12.2	-

FIAC: Flanders Interaction Analysis System

Table 9

TEACHER A: PERCENTAGE FREQUENCY DISTRIBUTION FIAC

Category of Talk	Pre-O.S.	During O.S.	Post-O.S.
Teacher Response			
1. Accepts feelings	0.9	1.6	0.3
2. Praises	3.3	3.3	2.0
3. Accepts or uses ideas	8.5	6.6	6.2
Totals	12.7	11.5	8.5
Ranks	High	Medium	Low
Teacher Initiation			
5. Lectures	46.3	49.6	56.4
6. Gives directions	4.8	5.0	2.4
7. Criticizes	4.0	3.6	3.9
Totals	55.1	58.2	62.7
Ranks	Low	Medium	High
4. Questions*	12.9	11.9	13.4
Ranks	Medium	Low	High

FIAC: Flanders Interaction Analysis Category System

*Response or initiation

Teacher A revealed the highest frequency count. The higher percentage frequency was post-O.S. but lowest pre-O.S. During O.S., lecturing was midway between the extremes. All mean average frequency counts were high, ranging from 46.3% to 56.4%. Outdoor education writers placed emphasis on the lack of need for lecturing (D. R. Hammerman & W. M. Hammerman, 1968:316). Teacher A behaved much the same outdoors as he did in the classroom.

Category 6 included the frequency with which the teacher gave directions. The highest frequency count was during O.S. and the lowest was post-O.S. The frequency percentage pre-O.S. was close to the former. This teacher behaved similarly in the classroom and outdoors as far as giving directions during the six sessions was concerned.

Category 7 included adverse criticism and the justification of teacher's authority. Teacher A revealed the highest frequencies pre-O.S., closely followed by the post-O.S. counts. The frequency count during O.S. was the lowest. These data may suggest support for the claim in outdoor education for reduced discipline problems when teaching outdoors (D. R. Hammerman & W. M. Hammerman, 1968:22).

Table 9 reveals the proportions of teacher responses and initiations. Outdoor education literature (J. W. Smith et al., 1972) has advocated a more "indirect" style of teaching which should reveal higher frequencies of teacher response categories. It was noted that Teacher A did exhibit high frequencies of Categories 1 and 2 ("accepts feelings" and "praises") during O.S. Outdoor school may, therefore, offer more opportunities for the teacher to exercise such response. When Category 3--teacher accepts ideas--was considered, the total for teacher response did not prove to be higher during O.S. It may be said, therefore, that by including more than one variable in the cluster for teacher response the results are confounded. In their review of studies using FIAC, Dunkin and Biddle (1974) found conflicting results for the relationship between indirectness and student products.

Teacher A did, however, confirm the findings that teachers in standard classrooms are primarily direct. The frequency with which he engaged in "teacher initiating talk" neither increased nor decreased during O.S. Within "teacher initiating talk," confounding variables were noted when Teacher A gave directions, revealing higher frequencies during O.S. Rosenshine and Furst (in B. O. Smith, 1971) noted a close association between teacher indirectness and use of student ideas. Teacher A's frequencies for accepting students' ideas was indeed highest when total frequencies for "response" (indirect) was "highest" (Table 9). Teacher A confirmed Askham's (1974) findings in which teachers did not provide very different interaction patterns either indoors or outdoors.

In summary, Teacher A talked proportionately less at outdoor school than he did during academic classes. At outdoor school, the teacher spoke more about students' feelings, giving directions to students, and praising, than he did during the average academic class. In school, the teacher spent more time during the average class accepting and using students' ideas, asking questions, lecturing, and criticizing or justifying authority.

Comparison of Relationships Between HITB and FIAC Results

The data in Table 10 indicated that at outdoor school Teacher A engaged in more talk about students' feelings, giving directions, and praising students, while at the same time he was coded as exhibiting higher warmth and equal clarity compared to his behaviour in the average academic class. The higher rating for "warmth" (the high-inference variable) was in contradiction to the results for teacher response (Categories 1, 2, and 3) and teacher initiation (Categories 5, 6, and 7). The independence of the variable "warmth" from "directiveness" confirmed Dunkin and Biddle's (1974:120) observation. The comparative rankings of HITB and FIAC variables raised interesting questions; for example:

> Were the parallel rankings for the variables pure chance, or were they dependent on each

Table 10

TEACHER A: COMPARATIVE RANKINGS OF FIAC AND HITB DATA PRE-, DURING, AND POST-OUTDOOR SCHOOL

	Variable	Pre-O.S.	During O.S.	Post O.S.	Variables Similarly Ranked
	Withitness	Medium	Low	High	Cat. 4 Smoothness: Empathy
	Overlappingness	High	Low	Medium	Cat. 7 Momentum:Persuasiveness
	Smoothness	Medium	Low	High	Cat. 4 Empathy:Withitness
	Momentum	High	Low	Medium	Cat. 7 Overlappingness: Persuasiveness
	Clarity	Low	Medium	High	Cat. 5 Total Teacher Initiation
	Persuasiveness	High	Low	Medium	Cat. 7 Overlappingness: Momentun
	Warmth	Medium	High	Low	Cats. 1, 6
	Empathy	Medium	Low	High	Cat. 4 Withitness: Smoothness
Response	Cat. 1	Medium	High	Low	Cat. 6 Warmth
	Cat. 2	High	High	Low	None
	Cat. 3	High	Medium	Low	Total Teacher Response
	Total	High	Medium	Low	Cat. 3
Initiation	Cat. 5	Low	Medium	High	Total Teacher Initiation: Clarity
	Cat. 6	Medium	High	Low	Cat. 1 Warmth
	Cat. 7	High	Low	Medium	Cat. 5 Clarity
	Total	Low	Medium	High	Cat. 5 Clarity
		Medium	Low	High	Withitness:Smoothness: Empathy

other? Was the teacher less "withit" during outdoor school because of the "open" setting which may have reduced his "smoothness"?

In contradiction to the preferred outdoor teaching style, Teacher A revealed low ratings for empathy and questioning. He was perceived to have lower ratings during O.S. for withitness, overlappingness, smoothness, momentum, persuasiveness, and empathy and, at the same time, he revealed fewer frequencies of teacher criticism and teacher questions. The findings for empathy and criticism should have been inversely ranked but they were not; thus, the relationship between the two variables was not clear.

In contrast, Teacher A was ranked high during outdoor school for warmth while demonstrating higher frequencies for accepting feelings and giving directions. The rankings for warmth and giving directions confirmed the independence of these variables which were presumed to be closely related in the earlier reports of Lewin, Lippit, and White (1939). The variables were later clarified by McCandless (1961) and L. Smith and Hudgins (1964). These data also supported Rosenshine's (1971) findings that teacher indirectness (response) and use of student ideas were positively correlated.

The ranking of empathy (a high-inference variable) should have corresponded with the incidence of Category 1 "teacher accepts feelings" (a low-inference variable).

No explanation of the conflict can be offered unless the qualitative judgment inherent in the high-inference coding did not coincide with the quantitative measure apparent in the low-inference frequency.

"Clarity," on the other hand, conformed with Category 5, "teacher lectures" and the totals for "teacher initiation" which might have indicated that teacher response or the indirect "discovery learning" model may be more vague.

The agreement between warmth and accepting feelings, which contradicted the ratings for empathy, may have indicated conceptual confusion over warmth and empathy. The contrast between the rating for warmth and empathy was no less interesting than the corresponding contrast with the inverse relationship between withitness, smoothness, empathy, teacher questions, and warmth, accepts feelings, gives directions.

Table 10 shows data from HITB and FIAC instruments with relative ranking of variables pre-, during, and post-outdoor school. Some tentative inverse relationships are worth noting. As the variables withitness, smoothness, empathy, and questioning increased, the three variables warmth, accepting feelings, and giving directions decreased. The obvious anomaly was the apparent contradiction of the high-inference variable rating for empathy and "accepting feelings" which represented a low-inference frequency count.

The anomaly exists because the two variables were supposed to consider the same or similar teacher behaviour. A partial explanation may be found in the qualitative nature of quantitative data. The high-inference variable was coded live for half of the 40-minute observation, whereas the low-inference frequency was tape-recorded for the entire 40 minutes of the lesson. Conceptually, the two variables were seen to be more similar than different and thus the operation of the instruments was brought into question.

Clarity, lecturing, and total teacher initiation were inversely related to accepting ideas and total teacher response. The relationship would support the indirect versus direct (that is, response versus initiation) modes of teacher behaviour to which Flanders alluded in his early work (Freiberg, 1981). Blocksidge (1978), in his study of three teachers prior to, during, and after outdoor school, reported mixed results in the high-inference variables.

Presage-Process Data

This section examines the interrelationship of variables from two segments of the Dunkin and Biddle (1974) model for the study of teaching (Figure 1, page 8). The presage segment deals with formative data, training experience, and teacher properties. The process segment deals with teacher behaviour under (a) HITB and (b) FIAC data.

Various researchers, including Dunkin and Biddle (1974), have considered the importance of the interrelationship between segments. In this case, Teacher A's preparation and experience are examined in light of his performance in the classroom and outdoors. Reported data were detailed earlier in this section.

Teacher A was a 39-year-old male with 16 years' teaching and administration experience and a Master's degree in counselling. The observations made of his teaching revealed a reasonably stable performance throughout the period, both indoors and outdoors, which would seem to be consistent for a 16-year veteran. The absence of any dramatic changes in observed behaviour during the outdoor phase was consistent with his overt support for O.E. The MTAI score would indicate that his views on the autocratic-democratic continuum of teaching achieved a higher score when he was compared with the standardized norms for secondary school teachers. Dunkin and Biddle (1974:114) noted that there were contradictory results in the relationship between teacher scores on the MTAI and teacher indirectness. They pointed out, however, that higher scores on the MTAI were associated with greater acceptance of student ideas (ibid.:124). Teacher A's frequency percentages for indirectness-response were minimal, never more than 12.7% of total talk. For accepting students' ideas, they were never more than 8.5% of total talk, whereas he was placed at about the 50th percentile on the MTAI. These data would indicate that he placed no higher than 50% of the population on the autocratic-democratic continuum and he engaged in a small (12.7%) amount of talk intended to encourage children to initiate more talk. Teacher A's data do not help to clarify Dunkin and Biddle's picture of contradictory relationships. They reported that teachers use little criticism, a finding supported by data from Teacher A; that is, never more than 4% of total talk. Criticism, according to Dunkin and Biddle (1974:131), was not seen to be related to MTAI scores; thus, the relationship was considered to be irrelevant.

Context Data

1. Student formative experiences are shown in Table 11.

Table 11

TEACHER A: CONTEXT DATA

Age/Grade		No. of Students*	% of Total Class
Age:	8 years	4	13.3
	9 years	8	26.7
	10 years	12	40.0
	11 years	6	20.0
Grade:	4	10	33.3
	5	11	36.7
	6	9	30.0

*Sex: 12 girls, 18 boys; Ratio: 2:3; Mean age 9.7 years

2. Student Properties

The students of Teacher A were generally high academic achievers as the data in Tables 12, 13, and 14 show. The relative stability of the school may be inferred from its Grade 3 students and the system scores which are recorded in Tables 13 and 14 (Stanford Mathematics Test Scores, Madden et al., 1972). Except for Grade 5 student scores, these tabulations showed that Teacher A's students were equal to or higher academically than their peers in their own school and in the Calgary public school system.

3. School and Community Context

The Calgary public school in which Teacher A taught had a student enrolment of approximately 450 in 1979. The population of the city of Calgary was about 530,800 in the same year.

As the school boundaries were not fixed, a number of students were bused to the school. Parents of students in Teacher A's class generally supported outdoor education as was evidenced by the fact that all but one child were allowed to attend outdoor school, which entailed a fee of $55. per child.

4. Classroom Context

The classroom was semi-open, sharing as it did personnel and space with the class of Teacher B. The divider between the two "rooms" was open more often than it was closed. The classes intermingled and changed

Table 12

CCAT GRADE 4, TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM, RELEVANT CLASSES, AND STUDENTS OF TEACHER A

Total System 1979-1980	Total School 1978-1979	Total School 1979-1980	Total Class 1979-1980	Teacher A Grade 5 1978-1979
Verbal				
N = 6568	N = 47	N = 72	N = 10	N = 5
min. = 9	min. = 36	min. = 23	min. = 33	min. = 62
max. = 98	max. = 94	max. = 95	max. = 85	max. = 91
med. = 64.4	med. = 69.0	med. = 67.5	med. = 67.5	med. = 80.0
Non-Verbal				
N = 6537	N = 45	N = 72	N = 9	N = 5
min. = 8	min. = 35	min. = 30	min. = 64	min. = 58
max. = 80	max. = 80	max. = 79	max. = 78	max. = 75
med. = 67.3	med. = 68.7	med. = 71.1	med. = 75.0	med. = 66.0

CCAT: Canadian Cognitive Abilities Test

Table 13

CTBS GRADES 3 AND 6, TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM, RELEVANT CLASSES, AND STUDENTS OF TEACHER A

Grade 3*		Grade 6*		
Total System	Total School	Total System	Total School	Teacher A Class
Vocabulary		Vocabulary		
N = 5922	N = 33	N = 5833	N = 65	N = 8
min. = 1	min. = 8	min. = 1	min. = 17	min. = 23
max. = 31	max. = 31	max. = 45	max. = 44	max. = 40
med. = 20.3	med. = 23.6	med. = 28.0	med. = 33.6	med. = 29.0
Reading Comprehension		Reading Comprehension		
N = 6290	N = 57	N = 6177	N = 63	N = 8
min. = 1	min. = 14	min. = 4	min. = 28	min. = 31
max. = 59	max. = 56	max. = 72	max. = 68	max. = 62
med. = 32.0	med. = 35.8	med. = 39.4	med. = 48.8	med. = 47.0

*All data 1979-1980

CTBS: Canadian Test of Basic Skills

Table 14

STANFORD MATHEMATICS TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM, RELEVANT CLASSES, AND STUDENTS OF TEACHER A

	Grade 3				Grade 6			
	Total System 1979-1980	Total School 1978-1979	Total Class 1978-1979	Total School 1979-1980	Total System 1979-1980	Total School 1978-1979	Total School 1979-1980	Total Class 1979-1980
Concepts	N = 6206	N = 61	N = 17	N = 57	N = 6098	N = 79	N = 67	N = 13
	min. 1	min. 5	min. 9	min. 9	min. 1	min. 5	min. 14	min. 0
	max. 32	max. 31	max. 24	max. 31	max. 35	max. 35	max. 35	max. 34
	med. 18.4	med. 20.0	med. 17.7	med. 21.7	med. 24.3	med. 24.0	med. 26.2	med. 27.0
Computations	N = 5729	N = 61	N = 0	N = 33	N = 5744	N = 55	N = 21	N = 13
	min. 1	min. 8	min. -	min. 9	min. 5	min, 14	min, 19	min. 0
	max. 36	max. 36	max. -	max. 30	max. 45	max, 42	max, 44	max. 44
	med. 20.2	med. 19.8	med. -	med. 16.3	med. 31.6	med. 31.0	med. 34.0	med. 36.0
Applications	N = 6262	N = 61	N = 17	N = 57	N = 6006	N = 80	N = 67	N = 13
	min. 1	min. 5	min. 9	min, 6	min, 2	min, 10	min. 10	min. 0
	max. 28	max. 27	max. 27	max, 28	max, 40	max, 39	max. 39	max. 39
	med. 19.6	med. 21.6	med. 21.7	med. 22.1	med. 27.2	med. 28.3	med. 30.1	med. 32.0

frequently but, for purposes of this study, constant groups were observed with their respective teachers for all sessions prior to, during, and after outdoor school. A sketch of the classroom environment is depicted in Figure 6.

5. Outdoor Context

The outdoor school was conducted at Pioneer Lodge near Sundre, Alberta, a small rural town of about 2000 people. The environment described in Figure 7 was a campsite about 2 km from the lodge and the town of Sundre itself. Pioneer Lodge was a year-round camp with winterized facilities, and meals supplied. The campsite, with three fireplaces, was located on the property and consisted of a clearing in a mixed-wood forest. The walking study-tour of the town had the class travelling many of the streets in search of noteworthy features.

6. Classroom/Outdoor Contexts

The classroom and outdoor contexts were viewed as being distinct from each other. An inventory of each environment is presented in Figure 8 in order that differences may readily be seen.

The two environments had distinct effects on the children. The school site was very familiar to them because they had attended the classroom during regular school days for seven weeks. On the other hand, they had occupied the outdoor site for less than a day prior to completion of the environment inventory. It became apparent that the students

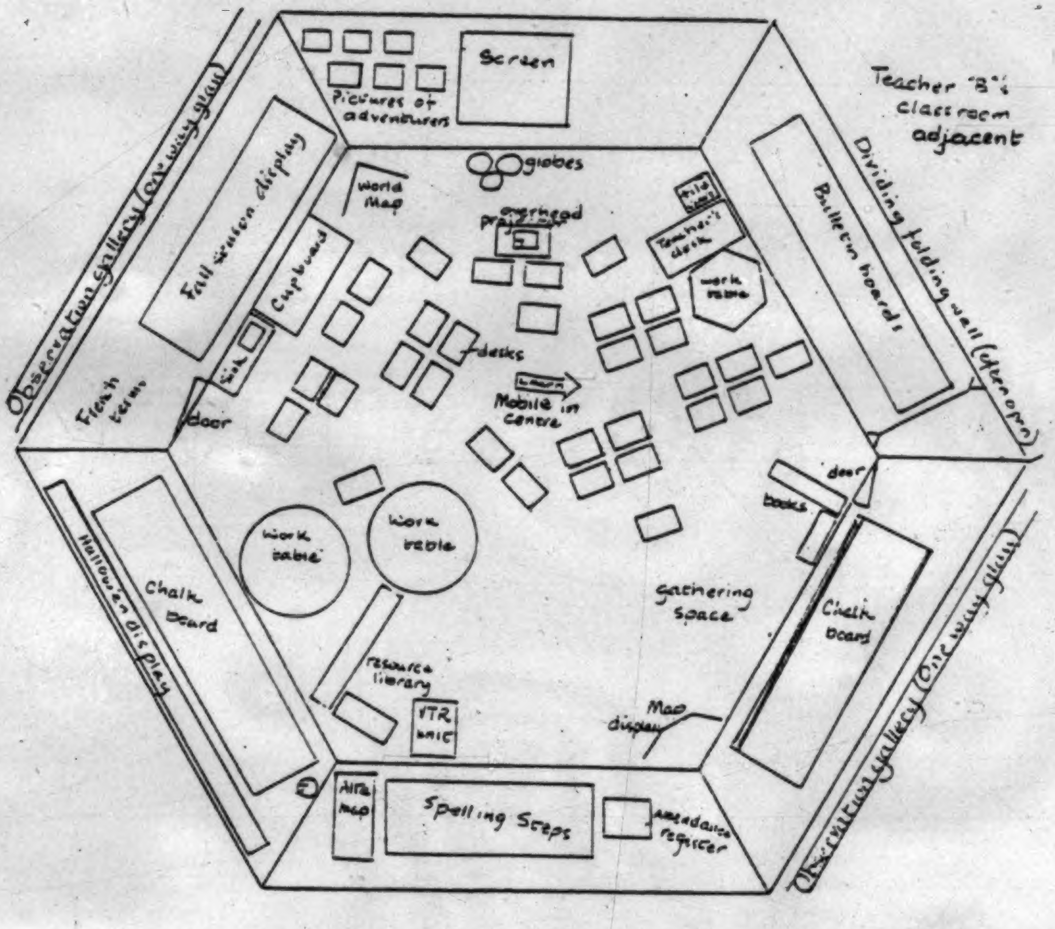

Screen
Pictures of adventurers
Teacher "B"'s classroom adjacent
Observation gallery (one way glass)
Fall season display
Cupboard
world Map
globes
overhead projector
file
Teacher's desk
work table
Bulletin boards
Dividing folding wall (often open)
desks
Sink
French term
door
Mobile in centre
door
books
work table
work table
Halloween display
Chalk board
gathering space
Chalk board
resource library
VTR unit
Map display
Alta map
Spelling Steps
attendance register
Observation gallery (One way glass)

Figure 6

Teacher A: Classroom Plan Sketch

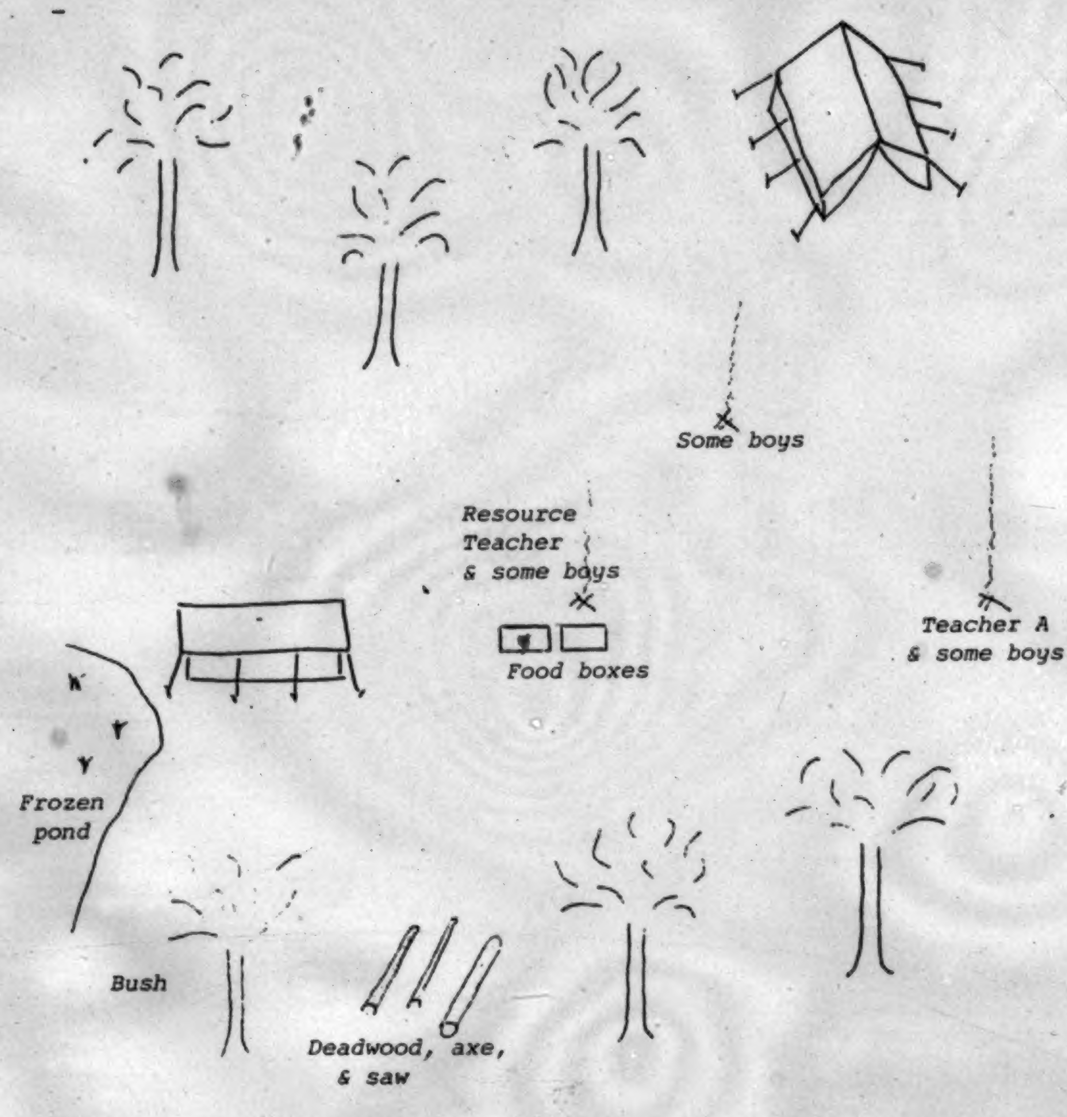

Some boys
Resource
Teacher
& some boys
Teacher A
& some boys
Food boxes
Frozen
pond
Bush
Deadwood, axe,
& saw

Figure 7

Teacher A: Outdoor School Site Sketch

Classroom: Mathematics & Language Arts	Outdoor Site: Breakfast time
Date: 16 October 1979; 2:55 pm	Date: 23 October 1979; 8:15 am
Organization of Total School	Organization of Outdoor School
Family grouping, i.e. Grades 4, 5 & 6 distributed over 6 classrooms	Sixty-two students divided into four study groups
Organization of Class	Organization of Class
Grades 4, 5, & 6; 27 boys and girls in language arts grouping	Grade 6, 18 boys only
Air	Air
Still; gentle air-conditioning; temperature 20°C	Still; temperature -5°C
Lighting	Lighting
Fluorescent, no windows	Natural daylight, overcast
Humidity	Humidity
Low, static electricity noted	High
Floor	Ground
Carpeting	Uneven, frozen, ice, snow, gravel rocks, tree stumps
Ceiling and Walls	Surroundings
Stipple, sound-proofed ceiling; walls concrete blocks on 5 sides. One wall a folding divider separating Teacher A from Teacher B, who was team partner Much colour used for displays.	Creek, beaver pond, some thin ice, white poplar and spruce trees, shrubs
Behaviour Setting	Behaviour Setting
Classroom boundaries desks, seats, and gathering space on floor. Much work required of students.	Outdoor firepits as focal points for warming and cooking. Relaxed atmosphere. No particular requirements made of students.

Figure 8

Teacher A: Environment Inventory

Behaviour Objects Books, pens, pencils, desks, chairs, overhead projector, screen images, and chalkboard	Behaviour Objects Campfire pits, fry pans, butter, jam, peanut butter, flipper, eggs
Standing Patterns Desks for overhead presentations and seatwork; gathering space for small-group work	Standing Patterns Patterns evolved through the time period. Three campfires with some boys at each. Most were close to two fires where two teachers stood. Boys warmed themselves or cooked, standing or crouching.
Period of Observation in Daily Plan Afternoon after library and language arts at end of school day	Period of Observation in Daily Plan Early morning; boys had just arisen from cold beds, donned cold clothes and frozen boots. After breakfast they were to return to the lodge.
Roles of Specialists Class normally left homeroom for science, physical education, art, French, and drama.	Role of Specialist Resource teacher accompanied class during outdoor session.
Interaction Patterns Boys and girls, the teacher, and the observer	Interaction Patterns Boys, the teacher, the resource teacher, and the observer
Timing Late afternoon	Timing Early morning, but at close of "camping out" phase

Figure 8 (continued)

were loathe to stray very far from the site during the evening and early morning. Only later did the boys leave the immediate vicinity of the campfires, venturing onto the thin ice over the beaver pond, with disastrous results for one boy. The wetting and subsequent procedures made an apparent impression on all of the students. The event was quite different from any classroom-induced activity. The outdoor tasks were much less demanding in time, standards, and knowledge, but the low temperature (-5°C) was obviously uncomfortable for the young boys. There was a significant difference in class requirements. Mathematics and language arts had certain individual requirements to be completed during the lesson. The outdoor lesson contained some compulsory aspects induced by the cold weather (for example, getting dressed and moving toward the fires). Cooking and eating appeared to be largely voluntary, perhaps intentionally so. The outdoor session, including sleeping out, lasted for about 14 hours.

Student-Process Data

The FIAC (Flanders et al., 1974) is a low-inference observation system. Data are recorded in 10 categories of which two comprise student talk. Category 9 includes student talk which is initiating whereas Category 8 contains student responses. Reported data are shown in Table 8. Of the total classroom talk, students talked for a mean average of 17.9% over all the classroom sessions. Before outdoor school they accounted for 19.1% of total talk; during O.S. the mean dropped to 18.5%; and post-O.S. their talk dropped to 15.3% of the total.

Category 9 included student initiating talk. The students initiated most before O.S., least afterwards, and between the two extremes during the outdoor phase. Outdoor educators have suggested that children may engage in more initiating talk during outdoor school (J. W. Smith et al., 1972:45). The present data would not appear to bear out that claim, although the significance of the variability was not apparent.

Category 8 included student responses to teacher questions. The students exhibited most responses during O.S., least afterwards, and between the two extremes before the event. The relationship between "initiating" and "responding" was always unidirectional; that is, "initiating" exceeded "responding."

There was more student talk during language arts than either outdoor school or mathematics. The latter showed the least proportion of student talk. Student initiating was highest in language arts, lowest in mathematics, and between the two extremes during outdoor school. The breakfast session during the outdoor phase revealed the second highest frequency percentage. It may be noted that the session involved older boys only from the classes of

Teachers A and B. There were fewer boys in the breakfast session than at any of the other sessions. The number was further reduced by the distribution of boys between two and sometimes three campfires. The high frequency of student-initiated talk may have been attributable to the small size of the group as well as the nature of the task (an unstructured lesson in cooking). The highest frequency percentage in student response was recorded during the town study as part of the outdoor phase. This result may have been attributable to numerous but obvious observations made by the children.

Context-Student Process Data

This section considers the interrelationships between variables from two segments of the Dunkin and Biddle (1974) model for studying teaching. Context data include student formative experiences, student properties, school and community contexts, the classroom context, and the outdoor context. Student process data include talk from the FIAC instrument.

The class was predominantly boys ranging in age from 8 to 11 years. Their teacher accounted for most talk in the classes observed where students spoke least after O.S. and most pre-O.S. They engaged in more initiating talk than mere response during the entire period. During O.S. the students responded more than before and after the outdoor phase. They initiated most before, and least after outdoor school. The highest frequency percentage of all single sessions was before O.S. during language arts.

Teacher and Student Process Data

Teacher and student-reported data from HITB and FIAC instruments were set out in Tables 7, 8, 9, and 10. Student and teacher talk is at the very hub of teaching and learning. The process segement was, therefore, identified as a key element in the Dunkin and Biddle (1974) model (shown in Figure 1 on page 8).

Data indicated that Teacher A engaged in more talk about student feelings, giving directions, and praising students, while at the same time he was coded as exhibiting higher warmth and equal clarity during O.S. compared with the mean average academic class. During O.S. the mean average student talk ranked second to the frequency percentage recorded before O.S. Student "response" during O.S. exceeded the frequency percentages for the periods before and after O.S. Student "initiating" talk during O.S. ranked second to the frequency percentage recorded for the period before O.S.

Total student talk and student "initiated" talk corresponded, but not necessarily significantly, in ranked frequency percentages to the teacher's usage of praise and the teacher accepting or using student ideas. Student "response" frequency percentage rankings shared the ranking for teacher's acceptance of student feelings and teacher giving directions.

FIAC Categories	Pre- O.S.	During O.S.	Post- O.S.
Student Cats. 8 & 9	High	Medium	Low
Student Cat. 9	High	Medium	Low
Teacher Cat. 2	High	Medium	Low
Teacher Cat. 3	High	Medium	Low
Student Cat. 8	Medium	High	Low
Teacher Cat. 1	Medium	High	Low
Teacher Cat. 6	Medium	High	Low

Student "response" frequency percentage ranking corresponded to the relative ranking for the teacher's interpersonal variable of "warmth."

Variable	Pre- O.S.	During O.S.	Post- O.S.
Student Cat. 8	Medium	High	Low
Teacher "warmth"	Medium	High	Low

Total student talk Cats. 8 and 9 and, more especially, No. 9 (student-initiated talk) corresponded with the ranked frequencies for teacher response (Cats. 2 and 3). Although Cat. 1 (accepts feelings) was missing, these data would support Flanders' (1974) theory that indirect teacher behaviour (response) encourages a higher incidence of student initiation. It was interesting to note that the relative ranking for teacher warmth did not coincide with the ranking of low-inference measures of teacher response with the exception of Cat. 1 (acceptance of feelings). The anomaly alluded to earlier was the high-inference variable "teacher empathy," which should have followed suit after Cat. 1 frequencies. A detailed discussion of similarities and differences in Teacher A's indoor and outdoor school behaviour follows.

Similarities and Differences Between the Indoor and Outdoor Behaviour of Teacher A

Teacher A encountered the outdoor education movement in schools as a teacher and administrator rather than through experience before or during teacher training. His experience at summer camp appeared to have disposed him positively toward the outdoors. He was "at home" during the less-structured outdoor living session. During the outdoor phase, he did not pursue skill acquisition with the same vigor he displayed in the classroom. The difference may be perceived in the following excerpts from transcripts of lessons recorded during both settings.

Outdoor Cooking

Teacher: All you have in there is some ash. (laugh) Aren't you . . . Oh! you're not cooking, Hugh? Okay, all right. So we're gonna need a little more oil for this one, but don't sweat it, we'll get it shortly.

Student: What are those guys having first?

Teacher: Well, they're going to have their porridge first. Okay. Now, I'm going to stand here and let these two guys do their egg-in-the hole. (laugh)

Hugh appears to have had the option of cooking or not. The light-hearted approach to the topic of cooking by the boys was evident from the frequent, almost mocking laughter. Teacher A's bantering laughter was balanced, however, by his concern for the boys, evident in his conversation with them.

Mathematics

Teacher: Can I just show you something about fractions. Most of you now have completed this task of going through the sheet which you have and writing down these things on them and you had to write them all the way across. I just want to talk to you a little bit about reading fractions. Okay! And, um, . . . What is this called? Who would like to read me this fraction? (Students raise hands)

Teacher: Billy?

Student: One-half.

Teacher: One-half. Right! And this is called, um . . . Jan?

Student: One-third.

Teacher: One-third. And those are our only two exceptions. What do we call the number on the top in a fraction?

Students: (Murmurs)

Teacher: Cathy? Or, Bob?

Student: Numerator.

Teacher: The numerator. And the number on the bottom is called what? Evelyn?

Student: Denominator.

Teacher: And the little line which goes between them has a name too. What is its name, Robert?

Student: Denominator.

Students: (Laughter)

Teacher: Robert, you've been . . . you've got a question behind. Okay! You were busy looking around and you got one whole question behind. We had that one answered. Come back and join us.

This segment conformed to a tighter academic schedule than did the outdoor cooking session. There were more ways than one for making breakfast, if any; but, in mathematics, there was but one right answer to any one question. Little or no humour was expressed by the teacher in the mathematics episode. He criticized Robert for inattention in mathematics, whereas he used a form of gentle teasing in the outdoor session.

Teacher A's background in camping and counselling was not revealed in the mathematics episode, whereas during the outdoor session, he revealed a more tolerant, even indulgent manner, as shown in the following outdoor segment:

Teacher: Oh! Okay. So, we're only each doing our own egg. Okay? And a nice piece of toast. Yeah,, that's right. I'd like you to cook it, John. Just . . . Okay? Do your best job on it and then you can turn it over to somebody else if you don't like them. That's a nice idea.

Teacher A's classroom management skills were consistently lower during outdoor school. This outcome might be expected owing to the loosely-structured "lesson" and the informal grouping evident in sessions like the "outdoor breakfast" and the "town study." Instructional variables, clarity, and persuasiveness, did not rate the highest during the outdoor session, which might have been expected of the breakfast segment that had only the general objective of cooking and eating, neither of which were required. In contrast, the classroom lessons in mathematics and language arts were much more task specific. The examples shown earlier illustrated this. Interpersonal variables revealed two extremes. Warmth was rated highest during outdoor school, indicating that the teacher showed how he cared about the students' welfare. On the other hand, his all-time low rating for empathy showed that, during the period of observation, he did not accept the students' feelings as much as he did during classroom sessions. The anomaly may have been attributable to data collection techniques.

Teacher A did not conform to the outdoor teacher model of a greater response-to-initiative ratio. Within the general category of response there was variation, with the teacher accepting feelings and praising to the same extent or higher, but he did not accept or use ideas as much as he did before O.S. Within the general category of initiation, he gave more directions at O.S., as would be appropriate in view of the novelty of the situations at the breakfast campfire and walking around town. He also lectured as much and more at O.S. which would indicate an implicit rejection of the "discovery learning" approach advocated by outdoor education authors. He adversely criticised his students less frequently at O.S. because either there were fewer opportunities, or he operated at a different threshold. In any event, the low incidence of criticism coincided with the high rating for warmth during outdoor school.

Outdoor education authors have claimed that opportunities exist at O.S. which reveal teachers as human. Nowhere was this better demonstrated than when Teacher A invited a World War I veteran to accompany the class on a visit to a cenotaph in the park at the beginning of the "town study." The teacher encouraged the veteran to recount his wartime exploits.

> Veteran: The Germans went back to their front-line trenches and ours went to our lines. And so they sent word I was liable to scout and I was in headquarters back behind the lines. I didn't take part in that attack. Uh . . . they sent word on again to me as a leader of the scouts to reconnoitre in "no-man's-land" and find out how heavy the German lines were manned. And so I started out with five men and the Germans put a bombardment on and I lost all but myself. I was the only one to get back, so I went back and got some more men and they too were killed. I was the only one. Then I went back and got one more. That's all the scouts that was left, and the two of us went out and we reconnoitred along the German lines and we came back to our own lines and we were bombed by the Germans. I just happened to be fortunate, I guess. I picked up the bomb and threw it out, otherwise we'd have been killed.

Teacher: So, you personally handled a live bomb and threw it out of the trenches to save everybody else's life as well as yours.

Veteran: Another bomb lit on top of my respirator. We had these gas respirators. It landed on top and I threw it out also.

Teacher: Okay, boys and girls. [Aside, to students]

Veteran: When I was over this last time I saw the large number of graves of the soldiers who gave their lives, and I knew that many of them had committed deeds far greater than mine and they paid the penalty for it with their lives. I was very fortunate I wasn't killed. I give them credit for . . .

Teacher: [Interrupts] I don't think you're doing justice . . . [choked up with emotion; takes a deep breath and forces it out to control the emotion surging up] I get choked up. Okay. I don't know if you're doing justice to yourself. I think, from what you say about just that particular day of your life, you deserved the award you got, sir, and I commend you for the way you behaved. [choked up with tears in his eyes and a lump in his throat]

Veteran: I deserved it to a certain extent, but I feel that so many others . . . I saw so many deeds of bravery and sacrifice that others did, I count mine very small. That's all.

Teacher: Thank you for sharing that with us. [Deep breath again in order to control emotion; then, to relieve the tension, changes conversation from the veteran to the class.]

While the excerpt speaks for itself, it was noted that during the veteran's talk and the reaction of the teacher, the children were quiet and attentive, and perhaps a little embarrassed, but they had a unique opportunity to see their teacher become very emotional, with the result that they knew he was capable of such a reaction and yet was able to regain his composure.

Product Data

The CAQ (Hoffmeister, 1971) was used to measure the students' perception of Teacher A in two dimensions, as shown in the data below.

Acceptance-understanding dimension:

Pre-O.S.	Post-O.S.	Gain/Loss
N = 28	N = 27	
Σ = 117.849	Σ = 110.720	
$\bar{X}$ = 4.209	$\bar{X}$ = 4.101	-0.108

Problem-solving skill dimension:

Pre-O.S.	Post-O.S.	Gain/Loss
N = 28	N = 27	
Σ = 122.400	Σ = 113.920	
$\bar{X}$ = 4.371	$\bar{X}$ = 4.219	-0.152

The CAQ was used in both instances. Reliability data were not available for the questionnaire; however, by using the same form with the same subjects, one possible explanation was that any changes in the mean average scores for the two dimensions were attributable to changes in the perception of the students, or the behaviour of the teacher, or a combination of both. Teacher A was seen to decline in both dimensions after outdoor school. Whether or not the outdoor school experience was the key factor is not known at this time, but further investigation is warranted.

Outdoor education literature is replete with claims for improved teacher-student rapport (J. W. Smith et al., 1972; D. R. Hammerman & W. M. Hammerman, 1973). In the present study the claim was not supported, at least according to data generated by the CAQ.

The decline in CAQ scores corresponded to a decline in the frequency with which Teacher A engaged in (indirect) response talk. That is to say, both declined after outdoor school. Cause and effect was not presumed, but further investigation is warranted. Whether or not the decline was significant is deferred until the final summation.

Teacher B

Presage Data

Presage data include the teacher's formative, training, and teaching experience, and teacher properties. This segment is one of four in the model (see Figure 1, page 8) for studying teaching, devised by Dunkin and Biddle (1974). The LOSS (Lumby, 1979) instrument was used to gather the data.

1. Formative Experience

Age: 37 years   Sex: female

Personal school experience related to O.E.: nil

Full-time jobs other than teaching: nil

Part-time jobs related to O.E.: nil

Experience related to O.E.: Queen's Guide Award

This female teacher was in mid-teaching life. There was a lack of outdoor education in her personal and educational background, and she had had no full-time work other than teaching. While she had undertaken no part-time jobs related to outdoor education, she had gained an important and related experience as a Queen's Guide in Jamaica (equivalent to Canadian Girl Guide's Association).

Very little of Teacher B's formative experience could be construed as contributing toward any disposition for outdoor education. The lone exception was her association with the "Guiding" movement. (Historically, this movement has shared common roots with outdoor education (W. M. Hammerman, 1980; Passmore, 1972).)

2. Training Experience

Degrees: B.P.E., 1969
B.Ed., 1971; Major, language arts, reading, physical education
M.A., 1979; Major, reading
Programs/courses in O.E.: Five-day camping and outdoor pursuits programs within the B.P.E. program

Teacher B's five-day camping experience was the only part of her training which was related to the outdoor movement. The remainder of her training had no obvious bearing on outdoor education and was considered irrelevant. The camping experience was not, by her own admission to the investigator, a positive and rewarding experience, accustomed as she was to the warmer climate of Jamaica. The five-day camp-out had not been heightened by the fact that she had to leave her infant son at home.

Early proponents of outdoor education (Sharp, 1948; J. W. Smith et al., 1972) advocated O.S. and camping courses to be included in teacher preparation. Other than the five-day camp, there was no evidence in her formal preparation of any courses related to outdoor education. In addition, it may be said that it was not likely that her brief camp-out disposed her well toward the outdoor environment.

3. Teaching Experience

Teacher B had no teaching experience related to O.E. Her teaching background was as follows:

Type of School Taught	Level	No. of Years	Subjects
Elem./Sr. High (in Jamaica)	K-12	3	Phys. Educ. specialist
Elem.	Grades 4, 5, 6	5	All subjects
Elem.	Grades 4, 5, 6	2	All subjects except P.E., art, music, & science

Teacher B's reported data revealed no outdoor education experiences except for a five-day outdoor school during each of the latter two years of teaching. The third outdoor school was the subject of this study and was reported by Teacher B to be her best attempt.

These data did not indicate a heavy commitment to O.E. but attendance at three consecutive outdoor schools would indicate a willingness to support that aspect of the program.

4. Teacher Properties

(a) The OEOT (Brekke, 1977)

The OEOT focussed on the teacher's perception of the factors which influenced her involvement in outdoor education and her recommendations for O.E. at various levels of schooling. Teacher B's responses are summarized in Table 15.

Teacher B's responses here appeared to indicate a support for outdoor education. Her ambivalence toward the experiences was revealed by her recommendations for O.E. which did not coincide with her own immediate and past experience. Her decision to offer outdoor schools was made voluntarily, however, and her previous O.S. had enabled her to feel relatively comfortable with the experience. The influence of courses, books, or agencies was minimal as was her formal teacher preparation. She was optimistically planning to continue with O.E. and observed that workshops and university courses were useful tools to make teachers familiar with outdoor education.

(b) The MTAI (Cook et al., 1951)

The MTAI places teachers on an "autocratic-democratic" continuum. It was administered to Teacher B prior to

Table 15

TEACHER B: RESPONSES TO OEOT

Category and Description	Mean Response	Response Range	Response Descriptors*
A. Difficulty of identifying and implementing outdoor education	3.6	1-5	Between average difficulty and relatively easy
B. Influencing factors:			
1. Awareness of books or courses	3.0	1-4	Small influence
2. Assistance or encouragement from school or government	2.9	1-4	Between no and some assistance
3. Decision to offer O.S.	-	-	Teacher's option
Previous experience with O.E.	-	-	Yes (½ day+)
Annual days planned	-	-	5
4. Plans to continue w/O.E.	-	-	Yes
C. Value of outdoor education	4.6	1-5	Agree / strongly disagree
D. 1. Suggested grades for O.E.	-	-	Grs. 3, 4, 5, 6
2. Suggested days and grades for O.E.	-	-	K - 30-40 days 3 - 20 days 6 - 10+ days 9 - 10+ days 12 - 10+ days
E. Teacher familiarization source(s) suggested	-	-	1. Workshops (visitors) 2. Workshops (local) 3. University courses

*OEOT: Outdoor Education Opinionnaire for Teachers

and following her attendance at outdoor school.

On the first administration of the MTAI, Teacher B gave 97 "correct" and 37 "incorrect" responses for a net score of 60 (prior to O.S.). She had been teaching in elementary schools for about 10 years. When compared with standardized norms, teachers who had four years of preparation in a school system of 20 or more teachers, Teacher B stood at the 50th percentile on the MTAI.

Following O.S., the second application of the MTAI resulted in an increased net score of 104 "correct" and 37 "incorrect" responses. The net score of 67 was seven more than the earlier score, placing her at the 57th percentile. Teacher B's scores did differ from one application to the next but the result would suggest that she was not as "open-democratic" as were between 43% and 50% of other elementary teachers shown to be with similar qualifications and experience (Cook et al., 1951).

J. W. Smith et al. (1972:29) and D. R. Hammerman and W. M. Hammerman (1973:362) advocated an open-democratic model of teacher behaviour in outdoor education. If one were to presume that superior outdoor teachers place in the upper quartile of the autocratic-democratic continuum, Teacher B's response would not compare favourably.

Teacher-Process Data

(a) HITB (Eggert, 1977)

HITB was designed as a high-inference rating scale for eight teacher qualities (variables): withitness, overlappingness, smoothness, momentum, clarity, persuasiveness, warmth, and empathy.

HITB data for Teacher B are shown in Table 16 which contains mean average ratings pre-, during, and post-outdoor school, as well as mean average ratings for the academic sessions, all sessions, and the teacher's self-rating. The important difference was viewed as that between the ratings for the outdoor phase and the other two phases.

Two variables--smoothness and empathy--were rated lower during outdoor school than pre-O.S. Five variables--overlappingness, momentum, clarity, persuasiveness, and warmth--were rated higher during than pre- or post-O.S. Withitness was the only variable which received neither the highest nor the lowest rating during O.S.

Prior to outdoor school, four variables--withitness, overlappingness, momentum, and persuasiveness--were rated lower than they were during and after the outdoor phase. Two variables--smoothness and empathy--were rated higher pre-O.S. The two remaining variables--clarity and warmth--rated between the extremes revealed during and after outdoor school.

After outdoor school, "withitness" was the only variable with the highest rating. Three variables--smoothness, clarity, and warmth--were lower than they were prior

Table 16

TEACHER B: HITB AVERAGE MEAN RATINGS

Variable	Cat.	Pre-O.S. $\bar{X}$	During O.S. $\bar{X}$	Post-O.S. $\bar{X}$	(acad.) Pre/Post $\bar{X}$	Over-all $\bar{X}$	TSR
Withitness	Management	3.7†	3.8	3.9*	3.8	3.8	3
Overlapping-ness		3.8†	4.6*	4.0	3.9	4.1	5
Smoothness		4.2*	3.9†	3.9†	4.1	4.0	3
Momentum		3.8†	4.4*	3.9	3.9	4.0	4
Clarity	Instruc-tional	4.2	5.0*	3.8†	4.0	4.3	5
Persuasive-ness		3.9†	4.8*	4.5	4.2	4.4	4
Warmth	Inter-personal	3.5	4.0*	3.3†	3.4	3.6	5
Empathy		3.5*	3.0†	-	3.5	3.3	3

*highest

†lowest

HITB: High Inference Teacher Behaviour Rating Scale

TSR: Teacher Self-Rating

to or during the outdoor phase. Overlappingness, momentum, and persuasiveness were ranked between the ratings given before and during outdoor school. Differences were noted in all variables with the exception of "smoothness" which was identical during and post-O.S.

Table 16 shows that the mean ratings of teacher management categories were:

Variable	Highest	Lowest
Withitness	Post-O.S.	Pre-O.S.
Overlappingness	During O.S.	Pre-O.S.
Smoothness	Pre-O.S.	During/Post-O.S.
Momentum	During O.S.	Pre-O.S.

The data revealed no consistent pattern of teacher management variables. Although there were differences between the settings in regular school and at outdoor school all classes were conducted indoors. The language arts lessons were offered in the home room while the drama lessons were conducted in a large room and in half a gymnasium. The outdoor school sessions were all taught in a lodge. The cooking class was held in the kitchen and the woolcraft session took place in one corner of the lodge "common" room. Withitness was the only variable rated higher after O.S. The change may have been attributable to factors other than O.S. Overlappingness and momentum were rated highest during O.S., which may have been attributed to the novel tasks of cooking and woolcraft. Smoothness was rated highest prior to outdoor school. Identical ratings were given for smoothness during and post-O.S. One might conjecture that the less structured outdoor school sessions revealed less smoothness which carried over into the classroom setting. In his study of three teachers, Blocksidge (1978) found that the mean average ratings for the four variables was highest during O.S., whereas the present study showed that during O.S. Teacher B was rated highest on two variables only--overlappingness and momentum.

Table 16 also showed that Teacher B fluctuated in the instructional categories:

Variable	Highest	Lowest
Clarity	During O.S.	Post-O.S.
Persuasiveness	During O.S.	Pre-O.S.

The variation in these ratings may have reflected random differences in Teacher B's behaviour on given days. However, it is notable that clarity and persuasiveness rated highest during O.S. In the case of persuasiveness, situational novelty may have played no small part. The high rating of clarity may have been partly attributable to the practical nature of cooking and woolcraft observed at O.S. The lessons prior to and following the outdoor phase were language arts and drama, both of which had a more elusive cognitive content.

In his study of three teachers before, during, and after outdoor school, Blocksidge (1978) noted that the mean average rating for clarity was highest afterwards and lowest before and during the outdoor experience, which ran counter to the findings for Teacher B. On the other hand, his ratings for persuasiveness in the same study coincided with the ranked ratings for Teacher B.

As the Table 16 data show, Teacher B also fluctuated in the teacher interpersonal categories:

Variable	Highest	Lowest
Warmth	Pre-O.S.	During O.S.

The variation in these ratings may have reflected the differences in settings. Outdoor education writers (J. W. Smith et al., 1972) have claimed increased opportunities for teacher warmth during O.S. Increased warmth was observed for Teacher B during O.S., which would support Smith et al.'s claim, but unless the rating after the outdoor phase was erroneous, the lasting benefit of O.S. was not indicated in the present study.

Blocksidge (1978) also recorded the highest rating during outdoor school. The mean average rating for empathy reflected few actual observations in any phase of this teacher quality. In fact, no evidence of overt empathy was observed during the post-O.S. lessons. Blocksidge noted a lower mean average for empathy during O.S. His evidence and results of the present study would not support the view held by O.E. authors such as Mand (1967:30) who claimed that the close interpersonal nature of outdoor school increased opportunities for teachers to show empathy.

With respect to self-ratings on the same categories, Teacher B's self-ratings revealed discrepancies between the perception of her own qualities and the mean average of all sessions rated by the observer (Table 16). In the case of overlappingness, clarity, and warmth, she estimated her rating higher than the observer's mean. When considering the categories of withitness, smoothness, persuasiveness, and empathy, her own ratings were lower. In one case only --that of momentum--did she agree exactly with the observer's mean rating. The discrepancies between self- and observer-ratings were almost evenly divided between over- and under-estimation, with the rating for one variable in complete agreement.

In summarizing the results of the eight HITB variables, it may be noted that during outdoor school the teacher was rated higher or equal to the ratings given pre- or post-outdoor school on six variables. Higher ratings were recorded for overlappingness, momentum, clarity, persuasiveness, and warmth. Lower ratings during outdoor school were recorded for withitness, smoothness, and empathy.

(b) The FIAC (Flanders et al., 1974)

The FIAC system gives mean percentage frequencies for 10 categories of teacher and student talk, as shown in

Tables 17 and 18. Flanders's general rule for teacher and student talk of two-thirds and one-third, respectively, was not revealed in Teacher B's class at any time. The average teacher talk was 78.6% of frequencies, which was unusually high. In light of outdoor education literature, some noteworthy features are apparent in Tables 17 and 18.

Category 1 included teacher talk which indicates acceptance of student feelings. Teacher B showed that she was speaking about student feelings most prior to outdoor school and least during O.S. (no recorded instances). Opportunities to accept student feelings were taken post-O.S. but not as many as were taken pre-O.S. Drama as a subject afforded most opportunities to accept student feelings, but it also included a session with no recorded incidents. According to outdoor education authors (D. R. Hammerman & W. M. Hammerman, 1968:228), O.S. should afford more opportunities for teachers to accept student feelings, but the data for Teacher B did not bear this out.

Category 4 included teacher questions. Frequency counts indicated that most questioning took place in the pre-O.S. period, and least questioning occurred during O.S. After outdoor school the frequency count was midway between the extremes. The lowest frequency count for any session was recorded during post-O.S. drama class, while the highest count was observed during language arts before the outdoor session. The "questioning" style of teaching associated

Table 17

TEACHER B: PERCENTAGE FREQUENCY DISTRIBUTION OF LESSONS USING FIAC

Category and No.	Language Arts			Outdoor School			Drama			Pre- X̄	Post X̄	All Academ.	All Six Sessions X̄
	Pre-	Post	X̄	Cook	Wool	X̄	Pre-	Post	X̄				
All Student Talk	22.5	28.5	25.5	12.7	34.3	23.5	09.9	16.1	13.1	16.2	22.3	19.3	21.4
All Teacher Talk	77.5	71.5	74.5	87.3	65.7	76.5	90.1	83.9	86.9	83.8	77.7	80.7	[illegible]8.6
1. Teacher accepts feelings	00.1	00.1	-	00.0	00.0	00.0	00.5	00.0	-	00.3	00.1	00.2	-
2. Teacher praises	01.1	03.9	-	01.1	04.1	02.6	09.4	06.5	-	05.2	05.2	05.2	-
3. Teacher accepts or uses ideas	05.0	08.0	-	01.7	02.0	01.8	03.9	01.4	-	04.4	04.7	04.6	-
9. Student talk initiation	19.8	26.4	23.1	08.3	32.8	20.6	09.5	07.5	08.5	14.6	16.9	15.8	-
4. Teacher questions	13.8	12.1	-	07.7	04.1	05.9	04.4	03.0	-	09.1	07.5	08.3	-
8. Student talk response	02.7	02.1	02.4	04.4	01.5	02.9	00.5	08.6	04.6	01.6	05.4	03.5	-
5. Teacher talk lectures	49.8	40.6	-	70.2	51.5	60.8	44.0	48.1	-	46.9	44.4	45.6	-
6. Teacher gives direction	05.4	03.6	-	06.1	00.5	03.2	26.0	23.6	-	15.7	13.6	14.7	-
7. Teacher critici-zes & justifies	02.2	03.1	-	00.6	02.0	01.3	02.1	01.2	-	02.1	02.1	02.1	-
0: Silence or con-fusion (Music)	11.9	08.6	-	21.0	31.1	26.0	51.8	52.1	-	31.8	30.3	31.1	-

FIAC: Flanders Interaction Analysis System

Table 18

TEACHER B: PERCENTAGE FREQUENCY DISTRIBUTION FIAC

Category of Talk	Pre- O.S.	During O.S.	Post- O.S.
Teacher Response			
1. Accepts feelings	0.3	0.0	0.1
2. Praises	5.2	2.6	5.2
3. Accepts or uses ideas	4.4	1.8	4.7
Totals	9.9	4.4	10.0
Ranks	Medium	Low	High
Teacher Initiation			
1. Lectures	46.9	60.8	44.4
2. Gives directions	15.7	3.2	13.6
3. Criticizes	2.1	1.3	2.1
Totals	64.7	65.3	60.1
Ranks	Medium	High	Low
4. Questions*	9.1	5.1	7.5
Ranks	High	Low	Medium

FIAC: Flanders Interaction Analysis Category System

*Response or initiation

with outdoor methods (D. R. Hammerman & W. M. Hammerman, 1973:359) was not in evidence with the observed behaviour of Teacher B.

Category 7 included adverse criticism and the justification of teacher's authority. Teacher B used this category least during outdoor school at which time the cooking session had fewest frequency counts of all sessions. The highest mean average frequency percentage for Category 7 was post-O.S. which was marginally higher than pre-O.S. The highest single session was post-O.S. in language arts class. These data may suggest that there is support for the claim in outdoor education for reduced discipline problems at O.S. (D. R. Hammerman & W. M. Hammerman, 1968:22).

Table 18 data list the proportions of teacher responses and initiations. Outdoor education literature (J. W. Smith et al., 1972; W. M. Hammerman, 1980) advocated a more "indirect" style of teaching which should reveal higher frequencies of teacher response categories. Teacher B, however, exhibited low frequencies in the teacher response categories during outdoor school, whereas pre-O.S. and post-O.S. she was consistently higher. This behaviour was in marked contrast to the preferred outdoor teacher style. Dunkin and Biddle (1974) reviewed studies using FIAC and one of their conclusions was that there were conflicting results for the relationship between teacher indirectness and student products. Another conclusion was that teachers in regular classrooms were primarily direct, a conclusion which fitted Teacher B. The balance of teacher talk dovetailed with the results noted above. Rather than exhibit the preferred outdoor teacher behaviour, Teacher B was more initiating during the outdoor phase with a particularly high incidence of lecturing. The data revealed a pattern similar to Rosenshine and Furst's (in B. O. Smith, 1971) observation of a close association between teacher indirectness (response) and the use of student ideas. The discovery-learning model for outdoor teachers noted in W. M. Hammerman (1980) was not borne out by Teacher B's Category 4 questions which were fewer during O.S. Indeed, she confirmed the observation by Askham (1974) that teachers varied little in interaction patterns indoors and out-of-doors.

In summary, Teacher B talked less at outdoor school than she did during the mean average academic class. At O.S. the teacher spoke more in a lecturing fashion than she did during the average academic class. In school, before the O.S. session, she spoke more about student feelings, giving praise, asking questions, and giving directions. After O.S., she spoke more about student ideas as well as adversely criticizing or justifying herself than she did pre- or during outdoor school.

Comparison of Relationships Between HITB and FIAC Results

The data in Table 19 indicated that at outdoor school Teacher B engaged in more lecturing while, at the same time, she was coded as exhibiting greater overlappingness, momentum, clarity, persuasiveness, and warmth compared with her behaviour in the average academic class. Prior to outdoor school, Teacher B revealed higher frequency percentages in the acceptance of students' feelings, praising students, questioning, and giving directions, while, at the same time, she was coded as displaying greater withitness. The higher rating for the high-inference variable "warmth" was in contradiction to the results for teacher response during O.S. These ratings added contradictory results to the mixed findings summarized by Dunkin and Biddle (1974:131). While warmth did not parallel the findings for Category 1--accepts feelings, Category 2--praises, or Category 3--accepts ideas, the ranking did run counter to those of Category 7--criticizes, which would support a popular but unconfirmed view of warmth and criticism.

The comparative ranking pattern of Category 5--lectures and clarity--suggested a closer relationship worth investigating further. The fact that warmth was comparatively ranked with total teacher initiation would negate the theory posited by Lewin, Lippitt, and White (1939) that warmth and directiveness are inversely related. The

Table 19

TEACHER B: COMPARATIVE RANKINGS OF FIAC AND HITB DATA PRE-, DURING, AND POST-OUTDOOR SCHOOL

	Variable	Pre-O.S.	During O.S.	Post O.S.	Variables Similarly Ranked
	Withitness	Low	Medium	High	
	Overlappingness	Low	High	Medium	Momentum:Persuasiveness
	Smoothness	High	Low	Low	
	Momentum	Low	High	Medium	Overlappingness
	Clarity	Medium	High	Low	Cat. 5 Total Teacher Initiation:Warmth
	Persuasiveness	Low	High	Medium	Overlappingness: Momentum
	Warmth	Medium	High	Low	Cat. 5 Total Teacher Initiation:Clarity
	Empathy	High	Low	-	-
Response	Cat. 1	High	Low	Medium	Cats. 6, 4
	Cat. 2	High	Low	High	
	Cat. 3	Medium	Low	High	Total Teacher Response
	Total	Medium	Low	High	Cat. 3
Initiation	Cat. 5	Medium	High	Low	Total Teacher Initiation:Clarity, Warmth
	Cat. 6	High	Low	Medium	Cats. 1, 4
	Cat. 7	High	Low	High	
	Total	Medium	High	Low	Cat. 5, Clarity: Warmth
	Cat. 4	High	Low	Medium	Cats. 1, 6

evidence in the present study supported the later theories of McCandless (1961) and L. Smith and Hudgins (1964) who considered the two variables unrelated. Clearly, further investigation is needed to discover the nature of the relationship between warmth and directiveness.

Teacher B was rated highly for clarity during outdoor school whereas Blocksidge (1978) found mixed results in his study of three teachers. Clarity is a factor in the learning-by-discovery model in which a degree of vagueness is expected. Teacher B did not exhibit a discovery-learning style during O.S. in the variables clarity/questioning which occurred less frequently.

Teacher B's low rating for empathy while at O.S. was in keeping with the low-inference measure of Category 1--accepts feelings--which would be entirely appropriate even though the rankings for the high- and low-inference data did not coincide for all three times. The absence of data for the post-O.S. HITB reading could be explained by the fact that during the 40-minute observation the low-inference data were collected throughout the period while the high-inference data were collected for half the time. These data supported Rosenshine's (1971) findings that teacher indirectness/response and use of students' ideas were positively correlated. The contrast between the ratings for warmth and empathy was indicative of the independence of those two variables. The inverse relationship between overlappingness, momentum, and persuasiveness and Category 1--accepts feelings, Category 6--gives directions, Category 4--questions, represents a very mixed picture. Clarity, warmth, Category 5--teacher lectures, and total teacher initiation, inversely varied at outdoor school with the total response categories as well as with smoothness and empathy. The relationship would support, at least in part, the indirect versus direct (that is, response versus initiation) modes of teacher behaviour to which Flanders alluded in his earlier work (Freiberg, 1981).

Presage-Process Data

This section examines the interrelationship of variables from two segments of the Dunkin and Biddle (1974) model for the study of teaching (Figure 1, page 8). The presage segment deals with formative data, training experience, teaching experience, and teacher properties. The process segment deals with teacher behaviour under (a) HITB and (b) FIAC data. Various researchers, including Dunkin and Biddle (1974), have considered the importance of the interrelationship between segments. In this case, Teacher B's preparation and experience are examined in light of her performance in the regular classroom and outdoors. Reported data were detailed earlier in this section.

Teacher B was a 37-year-old female, originally from the Caribbean with 10 years' teaching experience and a Master's degree in reading. There was a complete absence of evidence that the teacher accepted students' feelings in the sessions observed during outdoor school and during the drama class following O.S. Other observations made of her teaching would indicate a degree of stability at both regular and outdoor schools. The sessions observed at O.S. while practical were, nevertheless, executed indoors and observations should, therefore, have reflected similarities between indoor and outdoor school. The MTAI score indicated that she was just above the 50th percentile when compared with teachers with similar training and situation. Dunkin and Biddle (1974:124) noted that there were contradictory results for the relationship between teacher scores on the MTAI and teacher indirectness. Teacher B's frequency percentages for indirectness/response were minimal, never more than 10% of total talk, whereas she placed just above the 50th percentile on the MTAI. These data would indicate that she placed no higher than 50% of population on the autocratic-democratic continuum and she engaged in a small (10%) amount of talk intended to encourage children to initiate more talk. Teacher B's data did not clarify Dunkin and Biddle's picture of contradictory relationships. The same authors reported that teachers use little criticism, which was supported by data from Teacher B. Criticism, according to Dunkin and Biddle (1974:131), was not seen to be related to MTAI scores; thus, the relationship was considered to be irrelevant.

Context Data

1. Student formative experiences are shown in Table 20.

Table 20

TEACHER B: CONTEXT DATA

Age/Grade	No. of Students*	% of Total Class
Age: 8 years	3	9.677
9 years	8	25.808
10 years	9	29.032
11 years	11	35.484
Grade: 4	10	32.258
5	7	22.581
6	14	45.161

*Sex: 13 girls, 18 boys; Ratio: 13:18; Mean age 10.2 years

2. Student Properties

The students of Teacher B were generally high academic achievers as the data in Tables 21, 22, and 23 show. The relative stability of the school may be inferred from its Grade 3 students and the total system scores which are also recorded in these tables. With the exception of Grade 5 students, the data showed that Teacher B's students were equal to or higher academically than their peers in their

Table 21

CCAT GRADE 4, TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM, RELEVANT CLASSES, AND STUDENTS OF TEACHER B

Total System 1979-1980	Total School 1978-1979	Total School 1979-1980	Total Class 1979-1980	Teacher B Grade 5 1978-1979
Verbal				
N = 6568	N = 47	N = 72	N = 12	N = 6
min. = 9	min. = 36	min. = 23	min. = 49	min. = 36
max. = 98	max. = 94	max. = 95	max. = 93	max. = 78
med. = 64.4	med. = 69.0	med. = 67.5	med. = 71.0	med. = 52.5
Non-Verbal				
N = 6537	N = 45	N = 72	N = 12	N = 6
min. = 8	min. = 35	min. = 30	min. = 49	min. = 36
max. = 80	max. = 80	max. = 79	max. = 93	max. = 78
med. = 67.3	med. = 68.7	med. = 71.1	med. = 71.0	med. = 52.5

CCAT: Canadian Cognitive Abilities Test

Table 22

CTBS GRADES 3 AND 6, TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM, RELEVANT CLASSES, AND STUDENTS OF TEACHER B

Grade 3*		Grade 6*		
Total System	Total School	Total System	Total School	Teacher A Class
Vocabulary		Vocabulary		
N = 5922	N = 33	N = 5833	N = 65	N = 14
min. = 1	min. = 8	min. = 1	min. = 17	min. = 0
max. = 31	max. = 31	max. = 45	max. = 44	max. = 43
med. = 20.3	med. = 23.6	med. = 28.0	med. = 33.6	med. = 33.0
Reading Comprehension		Reading Comprehension		
N = 6290	N = 57	N = 6177	N = 63	N = 14
min. = 1	min. = 14	min. = 4	min. = 28	min. = 0
max. = 59	max. = 56	max. = 72	max. = 68	max. = 65
med. = 32.0	med. = 35.7	med. = 39.4	med. = 48.7	med. = 45.0

*All data 1979-1980

CTBS: Canadian Test of Basic Skills

Table 23

STANFORD MATHEMATICS TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM, RELEVANT CLASSES, AND STUDENTS OF TEACHER B

	Grade 3				Grade 6			
	Total System 1979-1980	Total School 1978-1979	Total Class 1978-1979	Total School 1979-1980	Total System 1979-1980	Total School 1978-1979	Total School 1979-1980	Total Class 1979-1980
Concepts	N = 6206	N = 61	N = 17	N = 57	N = 6098	N = 79	N = 67	N = 13
	min. 1	min. 5	min. 9	min. 9	min. 1	min. 5	min. 14	min. 0
	max. 32	max. 31	max. 24	max. 31	max. 35	max. 35	max. 35	max. 34
	med. 18.4	med. 20.0	med. 17.7	med. 21.7	med. 24.3	med. 24.0	med. 26.2	med. 27.0
Computations	N = 5729	N = -	N = 0	N = 33	N = 5744	N = 55	N = 21	N = 13
	min. 1	min. 8	min. 0	min. 9	min. 5	min. 14	min. 19	min. 0
	max. 36	max. 36	max. 0	max. 30	max. 45	max. 42	max. 44	max. 44
	med. 20.2	med. 19.8	med. 0	med. 16.3	med. 31.6	med. 31.0	med. 34.0	med. 36.0
Applications	N = 6262	N = -	N = 17	N = 57	N = 6006	N = 80	N = 67	N = 13
	min. 1	min. 5	min. 9	min. 6	min. 2	min. 10	min. 10	min. 0
	max. 28	max. 27	max. 27	max. 28	max. 40	max. 39	max. 39	max. 39
	med. 19.6	med. 21.6	med. 21.7	med. 22.1	med. 27.2	med. 28.3	med. 30.1	med. 32.0

own school and in the Calgary public school system.

3. School and Community Contexts

The Calgary public school in which Teacher B taught had a student enrolment of approximately 450 in 1979. The population of the city of Calgary was about 530,800 in the same year.

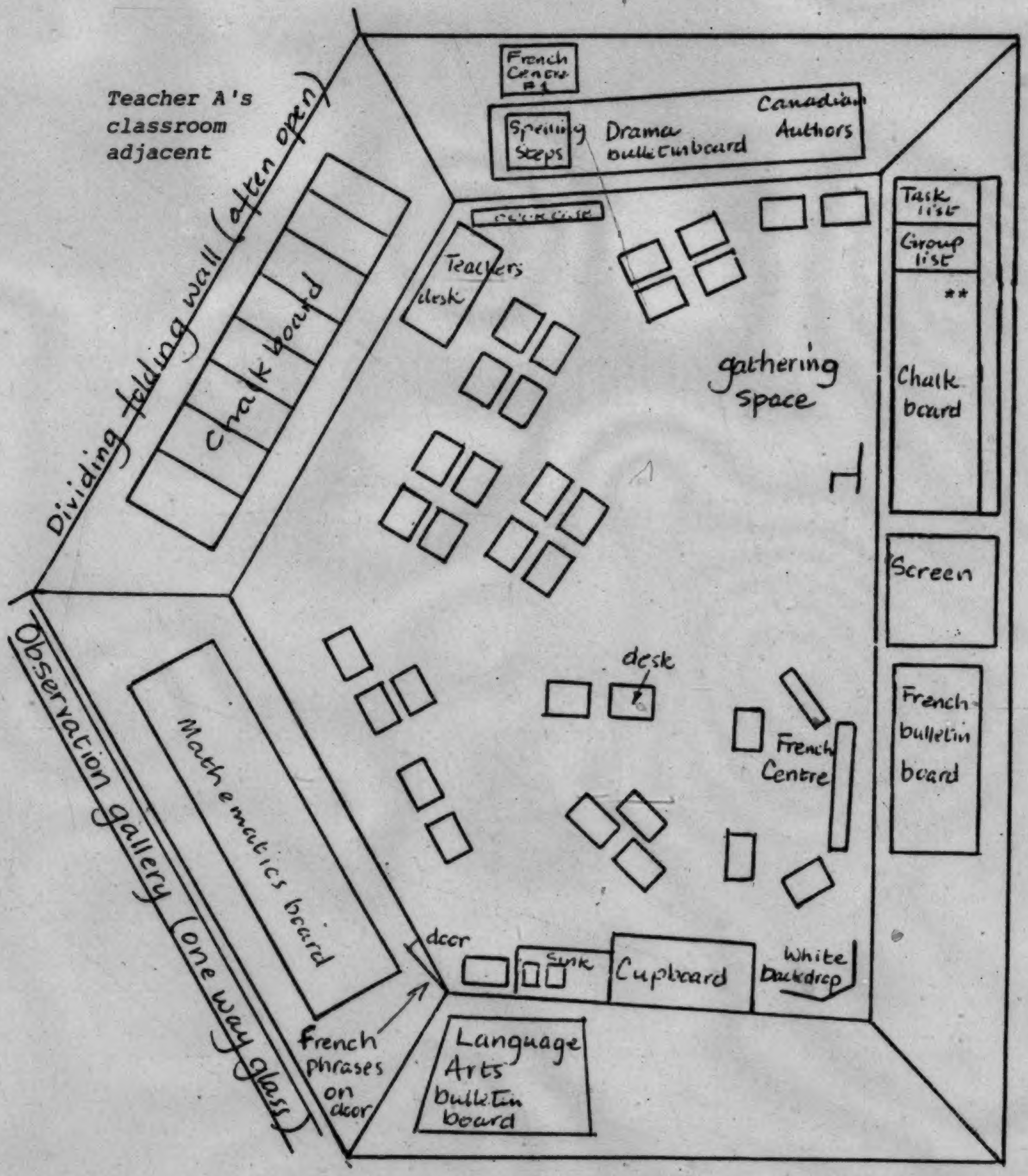
As the school boundaries were not fixed, a number of students were bused to the school. Parents of students in Teacher B's class generally supported outdoor education as was evidenced by the fact that all but one child were allowed to attend outdoor school, which entailed a fee of $55. per child.

4. Classroom Context

The classroom was semi-open, sharing as it did personnel and space with the class of Teacher A. The divider between the two "rooms" was open more often than it was closed. The classes intermingled and changed frequently but, for purposes of this study, constant groups were observed with their respective teachers for all sessions prior to, during, and after outdoor school. A sketch of the classroom environment is depicted in Figure 9.

5. Outdoor Context

The outdoor school was conducted at Pioneer Lodge near Sundre, Alberta, a small rural town of about 2000 people. The environment described in Figure 10 was the indoor kitchen in the lodge. A second environment (not


Teacher A's classroom adjacent
Dividing folding wall (often open)
Chalk board
French Centre #1
Spelling Steps
Drama bulletin board
Canadian Authors
Teachers desk
Task list
Group list
**
Chalk board
gathering space
Screen
desk
French Centre
French bulletin board
Observation gallery (one way glass)
Mathematics board
door
sink
Cupboard
White backdrop
French phrases on door
Language Arts bulletin board

**display: "Did you proofread? Spelling, punctuation carelessness"

Figure 9

Teacher B: Classroom Plan Sketch

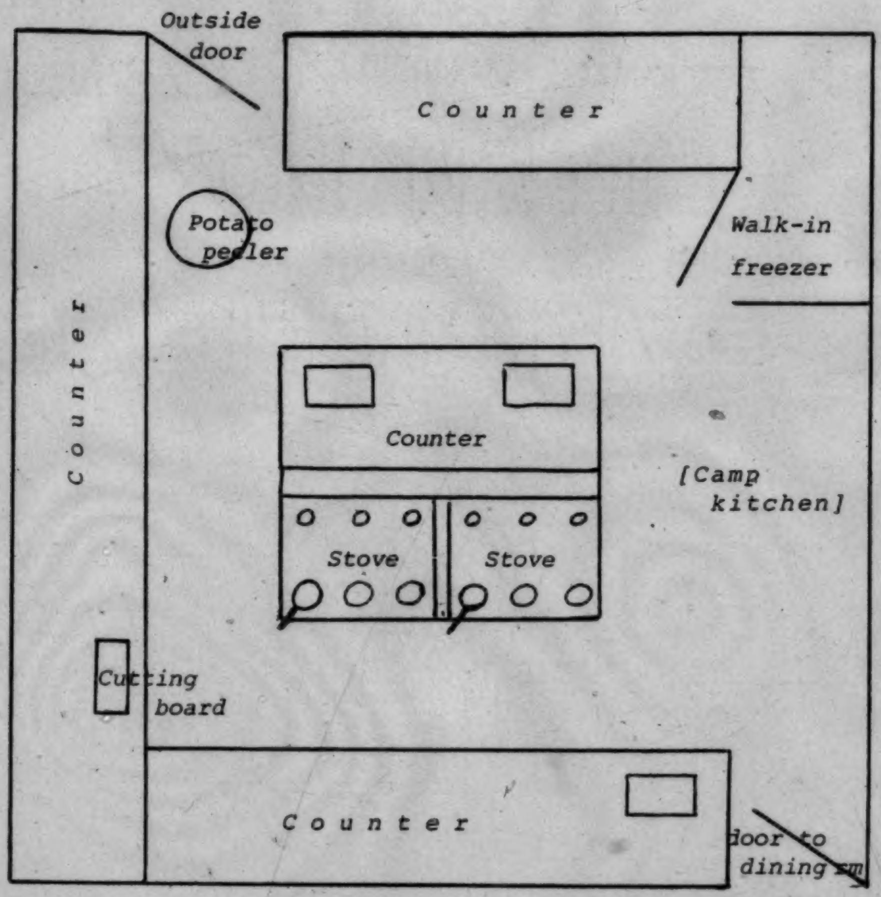

Outside door
Counter
Potato peeler
Walk-in freezer
Counter
Counter
[Camp kitchen]
Stove
Stove
Cutting board
Counter
door to dining rm

Figure 10

Teacher B: Outdoor School Site Sketch

sketched) was the area where woolcraft was conducted--an open room on the ground floor of the lodge containing chairs, a table-tennis board, and a carpet. During woolcraft classes the children, for the most part, occupied the carpet. Pioneer Lodge was a year-round camp with winterized facilities and meals supplied. The kitchen was turned over to the class for the cooking lesson.

6. Classroom/Outdoor Context

The classroom and outdoor contexts were viewed as being distinct from each other. An inventory of each environment is presented in Figure 11 in order that differences may readily be seen.

The two environments did not have drastically different effects. Both settings were indoors. Language arts required a cognitive activity for the most part while cooking required a high degree of motor activity. There was a work group assigned in both settings. The school site was familiar to the students because they had attended school for seven weeks during regular school days. The kitchen was strange to the students insofar as they had not seen that particular one until two days prior to the observation and then only as outsiders looking through the serving hatch. It would be true to say that, to most of the children, the kitchen resembled those in their own homes, albeit on a larger scale. Sex role differentiation was not apparent in the classroom session while some role

Classroom: Language Arts	Outdoor School: Cooking
Date: 16 October 1979; 1:55 pm	Date: 24 October 1979; 2:00 pm
Organization of Total School	Organization of Outdoor School
Family grouping, i.e. Grades 4, 5, 6 distributed over 6 classrooms	62 students divided into 4 co-educ. study groups, each of 14 to 18
Organization of Class	Organization of Class
Grades 4, 5, & 6; boys and girls in language arts grouping	Thirty-four students--24 boys, 10 girls
Air	Air
Still; gentle air-conditioning; temperature 20°C	Still; temperature at open door 15°C, near stoves 25°C
Lighting	Lighting
Fluorescent, 2 bars missing; no windows	Fluorescent; some windows
Humidity	Humidity
Low, static electricity noted	High, especially in late cooking stages
Floor	Floor
Carpeting	Linoleum
Ceiling and Walls	Ceiling and Walls
Stipple, sound-proofed ceiling; walls concrete blocks on 4 sides. One wall a folding divider separating Teacher B from Teacher A, who was team partner. Much colour used for displays.	Both painted
Behaviour Setting	Behaviour Setting
Classroom boundaries, desks, seats, and gathering space on floor. Much work required of students.	Kitchen boundaries, counters, stoves, cutting boards. Relaxed but purposeful atmosphere.

Figure 11

Teacher B: Environment Inventory

S.

Behaviour Objects	**Behaviour Objects**
Books, pens, pencils, desks, chairs, and chalkboard; empty grocery boxes	Stew ingredients, utensils, cutting boards, pans, stoves
Standing Patterns	**Standing Patterns**
Desks for seatwork; gathering space for small-group work	Patterns evolved through the cooking period with the teacher organizing small ad hoc groups for peeling, cutting meat/potatoes, etc.
Period of Observation in Daily Plan	**Period of Observation in Daily Plan**
Afternoon after French class, during the last class of the day	Afternoon after lunch. (Before lunch entire group had visited a sawmill study site.) After the cooking session, students were to be free until suppertime when they would be eating the product of their own cooking.
Period of Observation in Weekly Plan	**Period of Observation in Weekly Plan**
Tuesday	Wednesday, the day chosen for parent visitors to be received in the evening
Roles of Specialists	**Roles of Specialists**
Class normally left homeroom for science, physical education, art, drama, and French. Teacher B taught the latter two subjects.	Resident cooks guiding unobtrusively, leaving teacher to take charge
Interaction Patterns	**Interaction Patterns**
Boys and girls, the teacher, and the observer	Boys and girls, the teacher, and the cooks, and the observer
Timing	**Timing**
Mid-afternoon	Mid-afternoon, midway through outdoor school

Figure 11 (continued)

differences were noted during the cooking class; for example, the boys peeled potatoes, the girls browned the meat. On the whole, however, the roles were diffused over the scope of cooking tasks. There was a good deal of restlessness in the language arts lessons owing to the time of day and the tension created by the competitive game of listening carefully to stories to be tested. The cooking session, on the other hand, was conducted in a jocular mood with a readily attainable short-term aim. There was also the prospect of parents visiting that evening. All in all, the language arts session was mundane while the cooking session was infused with excitement.

Student-Process Data

The FIAC (Flanders et al., 1974) is a low-inference observation system. Data are recorded in 10 categories of which two comprise student talk. Table 17 shows the students' percentage of frequencies in Categories 8 and 9. Of the total classroom talk, students talked for a mean average of 21.4% over all observed sessions. Before outdoor school they accounted for 16.2% of total talk; during O.S. the mean increased to 23.5%; and post-O.S. their talk amounted to 22.3% of the total.

Category 9 included student initiating talk. The students initiated most during O.S., less afterward, but least of all prior to O.S. These data supported the suggestion made by outdoor education authors that children may engage in more initiating talk during outdoor school (J. W. Smith et al., 1972:45).

Category 8 included student responses to teacher questions. The students exhibited most responses post-O.S., less during O.S., and least pre-O.S. There was no particular pattern associated with the relative frequency percentages in the two student categories.

Relative to particular school subjects, there was more student talk during language arts lessons than there was in either drama classes or outdoor school. Drama showed the lowest frequency percentage for student initiating but the highest for student response. Language arts revealed the highest amount of student initiating but the lowest count for student response. The single session having the highest frequency percentage count was student response during drama class after outdoor school. Because drama included a proportion of mime activity, total classroom talk was reduced. The high percentage frequency count for the woolcraft session at O.S. was owing to the fact that the loosely structured session was held during the evening. After a brief introduction the students worked in small groups talking freely but not always in task-related conversation.

Context-Student Process Data

The student context variables may be summarized as a class of boys and girls ranging in age from 8 to 11 years. Their teacher accounted for most talk in the classes observed in which students spoke least before and most during outdoor school. Students engaged in more initiating talk than in more response during the entire period. After O.S. they responded more than pre- or during O.S. Students initiated most during and least prior to O.S. The highest frequency percentage of all single sessions was during O.S. in the woolcraft sessions.

Teacher and Student Process Data

Teacher and student-reported data from HITB and FIAC instruments were shown earlier in Tables 17, 18, and 19. At the very hub of teaching and learning are student and teacher talk. The process segment was identified as a key segment in the Dunkin and Biddle (1974) model (Figure 1, page 8).

Data indicated that Teacher B engaged in more lecturing while, at the same time, she was coded as exhibiting higher overlappingness, momentum, clarity, persuasiveness, and warmth. During outdoor school the mean average student talk ranked higher than the recorded incidence pre- or post-O.S. Student response during O.S. was ranked second while student initiation was higher than the same category pre- or post-O.S.

Total student talk and student "initiated" talk corresponded in ranked frequency percentages as follows: student initiated talk (Cat. 9) was ranked low, medium, and high, before, during, and after outdoor school, which coincided with total student talk (Cats. 8 and 9). Student "response" talk (Cat. 8) frequency percentage rankings corresponded with no other variables in either FIAC or HITB.

Student Categories 8 and 9 (especially No. 9) frequency percentage ranking corresponded to the relative ranking for the teacher management categories of overlappingness and momentum, and the relative ranking of the teacher instructional category of persuasiveness.

FIAC & HITB Categories	Pre-O.S.	During O.S.	Post O.S.
Student Cats. 8 & 9	Low	High	Medium
Student Cat. 9	Low	High	Medium
Teacher Categories:			
Overlappingness	Low	High	Medium
Momentum			
Persuasiveness			

Generally, it may be said that the amount of student talk, especially of the initiating variety, may vary with a teacher's categories of overlappingness, momentum, and persuasiveness. Outdoor school may be the place at which more student talk, especially initiating, takes place. The outdoor experience may allow teachers to display more overlappingness, momentum, clarity, persuasiveness, and warmth, as well as lecturing. In this study there were discrepancies between the low incidence of recorded praise and high rating for warmth in the same lesson. The difference may be explained by the fact that FIAC is coded on verbal data only, whereas HITB may be recorded from non-verbal communication.

Total student talk (Cats. 8 and 9) corresponded with ranked frequencies for teacher "initiation" (directiveness) and Cat. 5 (teacher lectures) all of which were ranked higher at outdoor school. The data contradict Flanders et al.'s (1974) theory that indirect teacher behaviour (response) encouraged a higher incidence of student initiation. Teacher B's warmth rankings did not coincide with the ranking of the low-inference measures of teacher response. Total student talk and initiation were inversely ranked with smoothness, empathy, accepts feelings, questions, and gives directions, which indicated that, as Teacher B exhibited higher percentages or ratings of the variables, the students' total talk and, especially initiating, diminished. Contrary to expectations, student initiations appear to have been encouraged by directive teacher behaviour.

Similarities and Differences Between the Indoor and Outdoor Behaviour of Teacher B

Teacher B did not reveal strikingly different behaviour patterns in the two settings. Although the content varied between the lessons observed in the regular classroom and at outdoor school, essentially they were all held indoors. Teacher B's relationship with outdoor methods and materials was not totally exclusive as may be illustrated by her willingness to accompany a group of girls on a single, overnight camp-out. She did not wish to submit to observation during the overnight camp-out, but she was very cooperative in permitting observations during the other sessions. In the sessions coded at O.S. concessions were made to the outdoor method and differences were noted. Consistencies were also noted between regular school and at O.S. sessions. The following examples from live observation audio-tapes are used to illustrate some similarities and differences in Teacher B's behaviour in the regular classroom and at outdoor school.

Outdoor Woolcraft

The woolcraft session (although conducted in a comfortable lodge at outdoor school) revealed an attempt by Teacher B to utilize native materials, a technique advocated by outdoor educators (Sharp, 1943). The attempt to bridge the gap between the real and vicarious forms of learning is seen in the following excerpt:

Teacher: Does everyone have the loom they made?

Students: [in chorus) Yes.

Teacher: In your design, we want you to use as many products of nature as possible. I am going to show you some of the possibilities we can do by first weaving in between. These were made by our very own students in south block. We can get an idea from these. There is another really nice one. Maybe if I put them here you can use your wool. Okay, for the main activity you'll need a partner. Sit right here. No, Brian, we need everyone sitting here. Take your boards with you. Take your looms and first come over here and listen. Okay, we've got all this lovely wool to work with. Where does it come from?

Students: [in chorus] Sheep.

Teacher: Where are they?

Students: In the fields.

Teacher: Did you see them?

Students: Yes; today we saw them.

Teacher: What were they like?

Student: They had black faces.

Teacher: Yes, good boy. Do you know what part of the world they come from?

Student: Scotland.

Teacher: Good, Tom. Yes, they originally came from Scotland. Now, before you can weave, you are going to have to card your own wool. What comes after carding?

Student: [calls out] Ooh, I know!

Teacher: Yes?

Student: Spin.

Teacher: Drop-spinning your own wool. Some of you may want to use some drop-spindle and some just carded wool.

Student: [interrupts] And machine-spun wool.

Teacher: And machine-spun wool for your weaving. I'm gonna give each pair of you a set of carders. Go right ahead and select a colour that you want to start carding.

Another example of the teacher attempting to bring reality into the indoor sessions at outdoor school was excerpted from the cooking session. The theme was pioneer cooking, with the class preparing stew for the entire group.

Outdoor Cooking

Teacher: Quickly. Who can tell me the kinds of food that would be available to early settlers in Alberta? Uhhm, Derek?

Derek: Beef and pork.

Teacher: Beef and pork. Would that be the first thing the pioneer family would eat? Stanley?

Stanley: Lamb.

Teacher: Lamb, uhhh . . .

Mark: [interrupting] Rabbit.

Teacher: Good thinking, Mark.

Student: Buffalo.

Teacher: Buffalo meat. Yes. What wild things would they get to eat?

Student: Wild turkey.

Teacher: Wild turkey. Okay. What about vegetables and fruit? Hands up! What did the typical farmer find when he went into his garden to try to find himself something to eat? Jake?

Jake: Carrots.

Teacher: Carrots. Probably.

Student: Peas.

Teacher: Yes, peas. Peas did very well out here. Sonia?

Sonia: Corn.

Teacher: Corn? Not in Alberta unless it's at Medicine Hat (about 322 k south-east of Calgary). Not in this area. Remember, we're looking at this area right now.

Student: Beets.

Teacher: Beets, right.

Student: Turnips.

Teacher: Turnips, right.

Student: Broccoli.

Teacher: No. Broccoli does grow here, but it came later.

While not always accurate in her information, the teacher attempted to bring reality into the cooking lesson. In the following excerpt taken from a language arts lesson, the teacher was observed to miss an opportunity to relate in-class material with the up-coming outdoor school.

Language Arts

Teacher: One living thing needs another living thing. All living things depend on each other in some way or the other. For example, how do we depend on bees? Yes?

Student: Well, they give us honey and they make flowers for us.

Teacher: They make flowers. I must get some bees because I love to grow flowers. My goodness, what do they do?

Student: They take the pollen to the flowers.

Teacher: Okay. I know what you are getting at. Who provides them with flowers to start with, usually?

Student: We do.

Teacher: Yes, we help by planting flowers they pollinate. Eventually, they help to remake the flowers they need because, um, by spreading the pollen we get fruits and by getting the fruits we get our seed and we get the cycle repeated.

Teacher B was observed at outdoor school during sessions which did not fall into the academic core of the school curriculum. There was evidence of lower-order questions being posed at outdoor school, whereas the in-school subjects revealed higher-order questioning, as the following excerpts would indicate.

Language Arts

Teacher: What is the purpose of a satire? Why are they writing with that style? Owen?

Owen: So people will like their authors that write their books.

Teacher: Is the topic for satire something funny and humorous, or is it something serious?

Students: [calling out] Funny. To impress people.

Teacher: It can be used to impress people, but usually the story in satire, is it something funny, or is it something serious that has been made funny?

Student: Something serious, but it's . . .

Teacher: [interrupts] Okay, that's what I really wanted to get across. It's a take-off or a humorous situation on something that really is quite a serious thing or something that actually could happen.

The following example from outdoor school illustrates the attempt to hold students accountable for the application of learning in a final written form. The excerpt also demonstrates the teacher's concern with the culmination of activities even in the less formal outdoor school setting.

Teacher: Finish your spinning, otherwise you won't get your design done tonight. Let's start weaving in five minutes for everybody.

Later, opportunities were presented first to praise and then to scold Donald (a mischievous boy), especially in the classroom.

Teacher: You've done a nice job, Marcie.

Donald: How's this?

Teacher: Excellent! Boy! Donald, are you an expert! Wow, look at that wool!

Donald: Yeah. [giggles and visibly swells his chest]

Then later:

Teacher: Donald, would you settle down and do what you were supposed to do? Donald, let me see your journal . . . , You haven't done anything on the ranch study.

Donald came in for his share of recognition and praise at school, too. The teacher was quizzing the children after they had listened to a story.

Teacher: What drink did the boy have for breakfast? I want Donald to give us the answer. [Donald was notorious for not listening.]

Donald: He had orange juice.

Teacher: Good boy. Very good, Donald. Excellent. [remaining students cheer.]

The latter example serves to point up the teacher's use of praise which bordered on being effusive at times. Drama classes offered many examples of high praise being given. The drama lesson excerpted here was based on the mime form; therefore, student talk, and especially student initiation, was infrequent. The children had been portraying emotions in pairs--one showing the selected emotion with the hands while the other displayed the same emotion with the feet. The children and the teacher were to guess what emotion each pair was attempting.

Drama

Teacher: We need to see the hands and feet clearly. Okay, John and Jeff, followed by Jan and Ann, and then you, Sherry and Chris, go after. Ready! [Students who had not performed persisted in raising their hands. To these students the teacher spoke.] You'll all get to go. [She continued to guess the emotions displayed.] "Mad." Excellent. Really good. Good feet. Good hands.

Students: [in chorus, guessing the next mime] "Cold."

Teacher: Cold? Very good. See, we were able to pick that up right away. Really good work. Um, Sherry and Chris, followed by Dave and Collin. [Students insist with raised hands because they have not been recognized.] Yes, after Dave. [Guessing next mime] "Bored." Is that it? Yes. Good. Very good. Do you have another one? "Anger." [Students nod.] Okay, very well done. Finally, Tammy and Betty.

Teacher B adhered to a common pattern of lesson shape including the need to remind the class of what they had done and were about to do. The following examples were taken from an indoor and outdoor lesson, respectively.

Drama

Teacher: Okay, umm . . . We've been working so far with levels. Let's review levels first and then we are going to go into our task for today. Okay. I want everyone to think of a free shape at a low level . . . [practice]. Okay. I want you to think of an ending shape in a high level shape. Remember your low level shape. Remember and think how you are going to end your movement sequence. Come on, I want better shapes in the beginning. Marcie, you're good. That's great, Mike. That's really good; excellent. Nice stretch.

In the following excerpt, the teacher was instructing the class in the kitchen at outdoor school. The episode serves to illustrate role expectation of boys and girls as well as her management skills in the practical setting of the kitchen.

Cooking Session

Teacher: Okay. We have a few tasks to be done. They have to be done very quickly and very efficiently. I'm going to put the girls' team on the stew with me. And the boys' team . . . I am going to have you . . .

Student: [boy interrupts] Peel potatoes.

Teacher: Yes. You are going to develop a very long line in a system. Just like a company. We're going to have one team of peelers and one team of cutters. One group that washes them and puts them into the salt water to cook our mashed potatoes. Okay. Who would like to be the peelers? Use a very safe . . . Okay, 1, 2, 3, 4, 5. Would you people go in quietly?

Teacher B displayed a greater use of discovery learning during in-school teaching where she usually gave the children scope to operate with a latitude not apparent at outdoor school. In the excerpt below, the teacher asks the children to move in symmetrical shapes during drama.

Drama

Teacher:	Heather, can you show us how you'd travel? Freeze. Is she still symmetrical?
Students:	[in chorus] Yes.
Teacher:	Can you tell us something about what makes her body move symmetrically? Yes?
Student:	You have to jump.
Teacher:	Your whole body has to move so it's always almost a jumping type of movement to make you travel symmetrically. Let's try it again this time.

Teacher B's verbal behaviour in the two settings was similar. A notable difference was in her use of discovery learning, a technique more evident in the regular classroom.

In spite of the indoor setting, attempts were made to utilize native materials at outdoor school. Little or no continuity was evident between the regular classroom content and outdoor school.

Higher-order questioning was evident in the regular classroom, but the management of the children varied little with the setting.

Product Data

The CAQ (Hoffmeister, 1971) was used to measure the students' perception of Teacher B in two dimensions, as shown in the data below.

Acceptance-understanding dimension:

Pre-O.S.	Post-O.S.	Gain/Loss
N = 29	N = 30	
Σ = 129.790	Σ = 133.030	
$\bar{X}$ = 4.480	$\bar{X}$ = 4.430	-0.05

Problem-solving skill dimension:

Pre-O.S.	Post O.S.	Gain/Loss
N = 28	N = 30	
Σ = 115.830	Σ = 126.630	
$\bar{X}$ = 4.137	$\bar{X}$ = 4.221	+0.084

The CAQ was used in both instances. Reliability data were not yet available for the questionnaire; however, by using the same form with the same subjects, one possible explanation for the difference was that any changes in the mean average scores for the two dimensions were attributable to changes in the perception of the students or the behaviour of the teacher, or a combination of both. Teacher B was seen to decline slightly in the acceptance-understanding dimension. She revealed a gain in the problem-solving skill dimension. Whether or not the outdoor school experience was the key factor is not known at this time, but further investigation is warranted, especially in view of the fact that the outdoor school experiences were held "indoors" for Teacher B and her class.

Teacher C

Presage Data

Presage data include the teacher's formative, training, and teaching experience, and teacher properties. As explained earlier, this segment is one of four in the Dunkin and Biddle (1974) model (reproduced here on page 8).

1. Formative Experience

Age: 27 years   Sex: female

Personal school experience related to O.E.: nil

Full-time jobs other than teaching: nil

Part-time jobs related to outdoor education: Day-camp leader for two consecutive summers; arts and crafts teacher; city camping with 7-year-old and 8-year-old children; crisis centre counselling.

Personal experience related to outdoor education: Many musical experiences; day camps; nature hikes with parents; some backpacking; cross-country skiing; camping, sailing, counselling, hikes with friends and church work camps; member of Explorers and C.G.I.T.

This female teacher was in the early years of her teaching career. While she had held no full-time jobs other than teaching, her part-time work was seen to be significantly related to outdoor education in that day-camping has a compatible philosophy. The arts and crafts leadership was judged to be an important and related activity as was the city camping experience with elementary aged school children. The remaining job-related experience was viewed as important in that crisis centre counselling would have been far more demanding than any outdoor school counselling but the interpersonal nature of counselling and expectations of an outdoor school teacher were closely related in philosophy and intent.

The catalogue of personal experiences related to the outdoors was long and varied including music, which has a firm place at outdoor school especially at evening campfire. The experiences in day camps and nature hikes with her parents were viewed as significant and related activities. Her affinity for the outdoors was documented through the pursuits of backpacking, cross-country skiing, camping, sailing, and hikes with friends. Two organizations provided outdoor living-related opportunities in the Canadian Girls in Training, the Explorers' group, and church work camps.

Much of Teacher C's formative experience was directly or closely related to her function and role at outdoor school which was the focus of this study. Historically, the founders of the outdoor movement have been keen advocates of any related outdoor activity (Sharp, 1952; J. W. Smith et al., 1972).

2. Training Experience

Degrees: B.Mus., 1975; Major, music; minor, drama
B.Ed., 1976; Major, music; minor, science, biology and physics, psychology, English, art
Other scholastic pursuits: two years (1970-1972) toward a nursing degree; studies included sociology (family and personal relations) and nursing
Distinctions: Student Council Award
Programs/courses in O.E.: Three camp leadership courses and two wilderness courses

Teacher C's training had been in nursing, initially. She had then transferred into a music program from which she graduated. Music, especially choral music and guitar, were seen to be significant elements in the outdoor school experience. After completing her B.Mus., she finished her B.Ed. with science in addition to music. Science and the field experience approach was viewed as an important element in her formal training. Her psychology and English courses could be considered tangential to the outdoor field. At least part of her nursing program could be significant to the interpersonal nature of living in an outdoor school where "personal relations" are important. Other formal courses had contributed to her preparation as an outdoor leader. Teacher C had undertaken three camp leadership and two wilderness courses, all of which had directly influenced her as a teacher in the out-of-doors.

Early proponents of outdoor education (Sharp, 1952; J. W. Smith et al., 1972) advocated that O.E. as well as camping courses be included in the preparation of teachers. Teacher C's formal training in the nursing program, the B.Mus., and the B.Ed. programs did not include direct reference to outdoor education courses. Outdoor education has been defined as multi-disciplinary in which music, science, drama, English, and art all have a place (ibid.). Many programs provide a firm place for science in the core studies at outdoor school, whereas music is the principal activity around the traditional campfire (W. M. Hammerman, 1980). Teacher C's experience with three camp leadership and two wilderness courses were undoubtedly significant and related to her role as teacher in the outdoor setting. Her formal studies in sociology (family and personal relations) were an asset in preparing her for the close interpersonal nature of outdoor school.

3. Teaching Experience

Teacher C's experience (see below) related to O.E. included a full academic year as a permanent O.S. teacher.

Type of School Taught	Level	No. of Years	Subjects
Jr. High	Grades 7 & 8	1.5	Language arts, reading, band, guitar, choir, handbells, study skills

Sr. High	Grades 10, 11, 12	0.5	English, music (substit. teacher)
Outdoor Residential	Grade 6	1.0	All outdoor subjects
Elem.	Grade 5 Grade 1-6 incl. Grade 7	0.3	Homeroom music outdoor education

The reported data on Teacher C included a significant segment related to outdoor education. She had been teaching for just over three years and for one of those years had been a permanent outdoor residential school teacher with responsibility for all outdoor-related topics, including evening campfires.

These data indicated Teacher C's strong commitment to outdoor education, even though she had quit the residential post after one year. In the year that followed she had proved willing to undertake a week at O.S. with a Grade 5 class of which she had recently been appointed homeroom teacher. This appointment had not been eased by the difficulty of taking the class after the beginning of the school term. Submitting herself and the class for study was seen as an indication of her ease with, and her commitment to, outdoor education.

4. Teacher Properties

(a) The OEOT (Brekke, 1977)

The OEOT focussed on the teacher's perception of the factors which influenced her involvement in outdoor education and her recommendations for O.E. at various levels of schooling. Teacher C's responses are summarized in Table 24.

The responses given by Teacher C to this section would indicate a support for O.E. Her facility with the content and method of O.E. reflected positively and optimistically on the program. Her response to books and courses and their influence revealed the mixed background reported in training experiences where formal university courses had little impact, whereas short courses in wilderness and camp leadership had a greater impact on her preparation for outdoor leadership. She was optimistically planning to continue with O.E. and observed that workshops, conferences, and current literature were useful tools to familiarize teachers with outdoor education. Her sole response to item D.2 was perceived as an oversight in that she prescribed 30 days for O.E. at the kindergarten level while the other selected grades--3, 6, 9, and 12--had no days entered on the questionnaire.

(b) MTAI (Cook et al., 1951)

The MTAI places teachers on an "autocratic-democratic" continuum as described earlier. It was administered to the teacher prior to and following outdoor school.

On the first administration of the MTAI, Teacher C gave 84 "correct" and 49 "incorrect" responses for a net score of 35 (prior to O.S.). She was teaching in an

Table 24

TEACHER C: RESPONSES TO OEOT

Category and Description	Mean Response	Response Range	Response Descriptors*
A. Difficulty of identifying and implementing outdoor education	3.3	1-5	Average difficulty to relatively easy
B. Influencing factors:			
1. Awareness of books or courses	3.2	1-4	Small to large influence
2. Assistance or encouragement from school or government	2.9	1-4	None to small assistance
3. Decision to offer O.S.	-	-	Teacher's and collectively
Previous experience with O.E.	-	-	Yes
Annual days planned	-	-	11
4. Plans to continue with O.E.	-	-	Yes
C. Value of outdoor education	4.6	1-5	Agree to strongly agree
D. 1. Suggested grades for O.E.	-	-	Grades 4, 5, 6, and 7
2. Suggested days and grades for O.E.	-	-	K - 30 days
E. Teacher familiarization source(s) suggested	-	-	1. Workshops (visitors) 2. Conferences 3. Current literature

*OEOT: Outdoor Education Opinionnaire for Teachers

elementary school but prior to that her preparation and early teaching had been in secondary schools. Percentile rankings for both elementary and secondary school teachers are considered. Compared to standardized norms for academic secondary school teachers with five years of training, she stood at the 40th percentile; for elementary school teachers with four years of training in a school system of 21 teachers or more, she stood at the 25th percentile.

The second application of the MTAI resulted in an increased score, with 17 more "correct" responses, and 12 fewer "incorrect" responses. The net score was 64, 29 more than the first response. The corresponding percentile rankings were 71st and 54th, respectively.

In reviewing the MTAI, Cronbach (in Buros, 1978:798) concluded that beginning teachers could be expected to reveal unstable results. Teacher C's results did differ, and dramatically so, thus supporting Cronbach's view of the MTAI. The results would suggest that Teacher C was not as "open-democratic" as were between 46% and 75% of other elementary teachers with similar qualifications and experience.

J. W. Smith et al. (1972:29) and D. R. Hammerman and W. M. Hammerman (1973:362) advocated an open-democratic model of teacher behaviour in outdoor education. If one were to presume that superior outdoor teachers were in the upper quartile of a scale like MTAI, Teacher C's responses would not compare favourably.

Teacher-Process Data

(a) HITB (Eggert, 1977)

The HITB was designed as a high-inference rating scale for eight teacher qualities (variables) as follows: withitness, overlappingness, smoothness, momentum, clarity, persuasiveness, warmth, and empathy.

HITB data for Teacher C are shown in Table 25 which contains mean average ratings pre-, during, and post-outdoor school, as well as mean average ratings for the academic sessions, all sessions, and the teacher's self-ratings. The important difference was viewed as that between the ratings for the outdoor phase and the other two phases.

Six variables--withitness, overlappingness, momentum, clarity, persuasiveness, and warmth--were rated higher during O.S. One variable, empathy, was rated higher during O.S. compared to post-O.S. Only one variable, smoothness, was rated lowest for the period during O.S. Two variables only were rated higher for the pre-O.S. period--smoothness and empathy. All of the six variables--withitness, overlappingness, momentum, clarity, persuasiveness, and warmth--were rated lowest pre-O.S. Three variables--withitness, clarity, and empathy--were rated equal to or lower than ratings made prior to O.S. when compared to ratings post-O.S. Ratings after outdoor school for the five variables--

Table 25

TEACHER C: HITB AVERAGE MEAN RATINGS

Variable	Cat.	Pre- O.S. $\bar{\bar{X}}$	During O.S. $\bar{\bar{X}}$	Post- O.S. $\bar{\bar{X}}$	(acad.) Pre/ Post $\bar{\bar{X}}$	Over- all $\bar{\bar{X}}$	TSR
Withitness	Management	2.8†	3.5*	2.8†	2.8	3.0	4.0
Overlapping- ness		3.1†	3.8*	3.4	3.3	3.4	4.0
Smoothness		3.6*	3.2†	3.4	3.5	3.4	3.0
Momentum		2.8†	3.3*	3.2	3.0	3.1	3.5
Clarity	Instruc- tional	3.4†	4.4*	3.4†	3.4	3.7	2.0
Persuasive- ness		3.1†	4.8*	3.3	3.2	3.7	4.0
Warmth	Inter- personal	2.4†	4.6*	3.1	2.8	3.4	4.5
Empathy		3.5*	3.0	2.3†	2.9	2.9	4.5

*highest

†lowest

HITB: High Inference Teacher Behaviour Rating Scale

TSR: Teacher Self-Rating

overlappingness, smoothness, momentum, persuasiveness, and warmth--were between the extremes when comparing post-outdoor school ratings with those made prior to or during outdoor school.

Differences may be noted in all variables with the exception of withitness and clarity, both of which were rated as being equal before and after outdoor school.

Table 25 shows that the mean ratings for Teacher C in the teacher management categories were:

Variable	Highest	Lowest
Withitness	Pre-O.S.	Pre-/Post-O.S.
Overlappingness	During O.S.	Pre-O.S.
Smoothness	Pre-O.S.	During O.S.
Momentum	During O.S.	Pre-O.S.

These ratings may have reflected the differences between the classroom and outdoor school. The pre- and post-O.S. ratings were made during classroom situations where children were essentially "deskbound" except for an innovative social studies program entitled SPEDS (Society for the Prevention and Elimination of Discrimination and Stereotyping). The outdoor school ratings were obtained in "unclassroom-like" settings (for example, on a trail and in a craft hut). In an attempt to account for changes, one might postulate that for withitness, overlappingness, and momentum, the ratings increased during O.S. and persisted, to some extent, afterward. Smoothness declined from a high rating before O.S. to the lowest during O.S., and made a partial recovery post-O.S. The decline of smoothness would have been consistent with the serendipitous approach to the nature trail if not for the craft lesson. The differences may have merely indicated the ratings for the teacher on the chosen days.

In his study of three teachers, Blocksidge (1978) found that the mean average ratings for all four variables were highest during outdoor school, whereas the present study showed that during the outdoor phase Teacher C was rated highest on three variables--withitness, overlappingness, and momentum.

Table 25 data also show that Teacher C was consistent in the two instructional categories:

Variable	Highest	Lowest
Clarity	During O.S.	Pre-/Post-O.S.
Persuasiveness	During O.S.	Pre-O.S.

The high ratings for clarity and persuasiveness during O.S., and the fact that they did not fall below pre-O.S. levels, may have indicated a positive carry-over effect of the outdoor experience. The ratings may, however, have simply reflected the teacher's performance on the given days.

In his study of three teachers pre-, during, and post-O.S., Blocksidge (1978) noted that the mean average for clarity was highest after and lowest before and during the outdoor experience, a pattern not followed by Teacher C. On the other hand, his ratings for persuasiveness in the same study coincided with the ranked ratings for Teacher C.

As the Table 25 data further indicate, Teacher C fluctuated in the ratings for interpersonal categories:

Variable	Highest	Lowest
Warmth	During O.S.	Pre-O.S.
Empathy	Pre-O.S.	Post-O.S.

One may postulate that the low rating for warmth before outdoor school and the subsequent highest rating during, followed by a high rating afterward, may have indicated the teacher's performance because of the outdoor experience. Blocksidge (1978) also recorded the highest rating during outdoor school. Teacher C's low rating for empathy during O.S. and the even lower rating post-O.S. did not support the claim by outdoor education authors that the outdoor setting increases the opportunities for teachers to respond to expressed feelings of the children (Mand, 1967: 30). The rating during outdoor school did, however, compare closely with the average in-school rating. Blocksidge noted a lower mean average for empathy during O.S. which was not contradicted by the findings of the present study.

With respect to self-ratings by the teacher on the same categories, there were discrepancies between the mean average ratings recorded by the observer and those reported by the teacher (Table 25). In all cases but two, she overestimated her rating. The two exceptions were smoothness and clarity, both of which she rated below any of the recorded mean average ratings. Of the six "overrated" ratings, two--persuasiveness and warmth--were exceeded by the observer's ratings during outdoor school. It may be stated that Teacher C overestimated her ratings for the variables withitness, overlappingness, momentum, and empathy.

In summarizing the results of the eight HITB variables, it may be noted that during outdoor school Teacher C was rated higher than the ratings for six variables given prior to or post-O.S. Higher ratings were recorded for withitness, overlappingness, momentum, clarity, persuasiveness, and warmth. Lower ratings during outdoor school were recorded for smoothness and empathy.

(b) FIAC (Flanders et al., 1974)

The FIAC system gives mean average percentage frequencies for 10 categories of teacher and student talk, as shown in Tables 26 and 27. Flanders' general rule of teacher and student talk as being proportionately 2:1 was not generally borne out by the data for Teacher C. The exceptions to Flanders' general rule were the mean average percentages for all sessions pre- and post-outdoor school during which times Teacher C's talk accounted for a little more than half of the total talk. The recorded data for

Table 26

TEACHER C: PERCENTAGE FREQUENCY DISTRIBUTION OF LESSONS USING FIAC

Category and No.	Mathematics			S P E D S			Library		Outdoor School						All	All Nine
	Pre-	Post	$\bar{X}$	Pre-	Post	$\bar{X}$	Pre-	$\bar{X}$	Walk	Beaver	Candle	$\bar{X}$	Pre- $\bar{X}$	Post $\bar{X}$	Academ. $\bar{X}$	Sessions $\bar{X}$
All Student Talk	26.5	40.3	33.4	61.5	54.1	57.8	53.6	53.6	34.0	35.1	28.7	32.6	47.2	47.2	47.2	39.9
All Teacher Talk	73.5	59.7	66.6	38.5	45.9	42.2	46.4	46.4	66.0	64.9	71.3	67.4	52.8	52.8	52.8	60.1
1. Teacher accepts feelings	00.0	00.0	-	00.1	00.2	-	00.6	-	00.8	00.2	00.5	00.5	00.2	00.1	00.2	-
2. Teacher praises	00.3	00.1	-	01.3	00.0	-	00.8	-	02.3	00.7	02.7	01.9	00.8	00.1	00.5	-
3. Teacher accepts or uses ideas	07.7	09.7	-	07.3	09.7	-	07.1	-	14.9	08.6	04.4	09.3	07.4	09.7	08.3	-
9. Student talk initiation	12.9	11.4	12.1	60.2	50.9	55.6	52.8	52.8	32.1	31.7	26.6	30.1	41.9	31.1	37.6	-
4. Teacher questions	14.0	19.2	-	10.2	12.1	-	03.0	-	05.3	06.2	07.0	06.1	09.1	15.6	11.7	-
8. Student talk response	13.6	29.0	21.3	01.3	03.2	02.2	00.8	00.8	01.9	03.4	02.1	02.5	05.2	16.1	09.6	-
5. Teacher talk lectures	45.4	27.5	-	17.4	17.0	-	28.4	-	37.3	43.5	44.9	41.9	30.4	22.3	27.2	-
6. Teacher gives direction	04.1	02.2	-	00.5	02.8	-	03.6	-	02.8	04.5	10.2	05.8	02.7	02.5	02.6	-
7. Teacher criticizes & justifies	01.9	01.0	-	01.6	04.2	-	03.0	-	02.6	01.3	01.6	01.8	02.2	02.6	02.3	-
0. Silence or confusion	07.9	18.5	-	11.8	40.1	-	21.1	-	18.9	33.9	04.7	19.2	13.6	29.4	19.9	-

Table 27

TEACHER C: PERCENTAGE FREQUENCY DISTRIBUTION FIAC

Category of Talk	Pre- O.S.	During O.S.	Post- O.S.
Teacher Response			
1. Accepts feelings	0.2	0.5	0.1
2. Praises	0.8	1.9	0.1
3. Accepts or uses ideas	7.4	9.3	9.7
Totals	8.4	11.7	9.9
Ranks	Low	High	Medium
Teacher Initiation			
5. Lectures	30.4	41.9	22.3
6. Gives directions	2.7	5.8	2.5
7. Criticizes	2.2	1.8	2.6
Totals	35.3	49.5	27.4
Ranks	Medium	High	Low
4. Questions*	9.1	6.1	15.6
Ranks	Medium	Low	High

FIAC: Flanders Interaction Analysis Category System

*Response or initiation

the sessions at outdoor school were closer to Flanders' rule of 2:1.

In the light of outdoor education literature, some noteworthy features were apparent in Teacher C's FIAC data (Tables 26 and 27). Category 1 included teacher talk which indicates acceptance of student feelings. While Teacher C showed she did not accept student feelings during mathematics lessons, the opportunities were not necessarily present in the lessons. The highest average frequency percentage was recorded during outdoor school. The average frequency percentages reported prior to O.S. were lower than the latter but higher than the average recorded after O.S. The highest single lesson frequency count was during the walk at outdoor school, which supported the claim of authors D. R. Hammerman and W. M. Hammerman (1968:228) that outdoor education affords more opportunities for accepting student feelings.

Category 3 included the teacher's acceptance or use of students' ideas. In this category, Teacher C used or accepted students' ideas more frequently after outdoor school. The lowest average frequency percentage occurred prior to O.S., while during O.S. the frequency count was between the two extremes. The lowest frequency count for any one session was during the candle craft session at O.S. Outdoor school also contained a single session with the highest frequency count in this category which occurred during the walk. These data would be in keeping with the nature of the sessions involved. The nature walk adopted a discovery approach with student ideas arising throughout the lesson. The candle craft lesson was teacher-directed toward a narrow purpose, allowing little scope for task-related student ideas.

Category 4 included teacher questions. Frequency counts indicated that most questioning took place during the period after outdoor school and least questioning occurred during the outdoor phase. Prior to O.S., questioning frequency was between the two extremes. The lowest frequency count for any one session was recorded during the library period held prior to outdoor school. The highest count was recorded during a mathematics lesson following outdoor school. The lower frequency of questioning during the library period was in keeping with the individual library research which comprised most of the session. The mathematics lesson was characterized by a question-and-answer format, thus the high frequency percentage. The "questioning" style of teaching associated with outdoor methods (D. R. Hammerman & W. M. Hammerman, 1973:359) was not in evidence during the observed behaviour of Teacher C.

Category 7 included adverse criticism and the justification of teacher's authority. Teacher C averaged fewer frequencies during outdoor school. The highest frequency count average was recorded after the outdoor session, with the count for this category taken prior to the outdoor phase being less. The lowest frequency count for any one session was during mathematics after O.S., while the highest single session tally was before the outdoor phase during the loosely structured library session. These data may support the claim that outdoor education reduces student control problems (D. R. Hammerman & W. M. Hammerman, 1968:22).

Table 27 data also revealed the proportions of Teacher C's responses and initiations. Outdoor education literature (J. W. Smith et al., 1972; W. M. Hammerman, 1980) advocated a more "indirect" style of teaching which should reveal higher frequencies of teacher response categories. It was noted that Teacher C exhibited the highest recorded frequencies in the teacher response (indirect) categories during O.S., with the lowest incidence pre-O.S. The medium ranking for teacher response post-O.S. may have indicated a positive carry-over effect from outdoor school. Teacher C did exhibit higher frequencies of the response categories during outdoor school but, curiously, she also exhibited the highest incidence of the initiation categories which would indicate, at least superficially, that teacher response and initiation are not inversely related. The confounding issues were the proportions of student talk and teacher questions, the latter being difficult to categorize.

Dunkin and Biddle (1974) reviewed studies using FIAC and one conclusion was that there were conflicting results for the relationship between teacher indirectness and student products. Another conclusion was that teachers in standard classrooms were primarily direct, a conclusion that fitted Teacher C. Rather than exhibit the preferred outdoor teacher behaviour, Teacher C was more initiating during the outdoor phase with a particularly high incidence of lecturing. Rosenshine and Furst (in B. O. Smith, 1971) noted a close association between teacher indirectness (response) and the use of student ideas. Data in Table 27 did not support the claim, although the incidence of the teacher accepting student ideas was very close to the higher frequency.

The discovery-learning model for outdoor teachers noted in W. M. Hammerman (1980:xvi) was not borne out by Teacher C's Category 4 questions, which were fewest at outdoor school. Askham (1974) observed that teachers varied little in interaction patterns in and out-of-doors. In the case of Teacher C, she did not conform to Askham's observation but, while her frequency percentages were identical before and after outdoor school, she engaged in more talk during the outdoor phase at which time the mean average exceeded the mean for all sessions.

In summary, Teacher C talked more at outdoor school than she did during the average academic class. At O.S.

she spoke more of accepting student feelings, praising, lecturing, and giving directions. In two categories--questioning and criticizing--the average academic class exceeded outdoor school. In school, after the outdoor phase, the teacher spoke more in accepting or using student ideas, questioning, and criticizing or justifying authority, than she did in sessions before or during outdoor school.

Comparison of Relationships Between HITB and FIAC Results

The data shown in Table 28 indicated that at outdoor school Teacher C engaged in more acceptance of student feelings, praising, lecturing, and direction giving, while at the same time she was coded as exhibiting greater withitness, overlappingness, momentum, clarity, persuasiveness, warmth, and empathy, compared with her behaviour in the average academic class. Before outdoor school none of her categories yielded higher frequency percentages while, at the same time, she was coded as exhibiting greater smoothness and empathy during the other two phases. After O.S. the teacher revealed a higher incidence of accepting or using student ideas, questioning, and criticizing or justifying authority, while at the same time she was coded as not exhibiting any of the eight variables higher than during the other two phases. The higher rating for the high-inference variable, warmth, coincided with the higher

Table 28

TEACHER C: COMPARATIVE RANKINGS OF FIAC AND HITB DATA PRE-, DURING, AND POST-OUTDOOR SCHOOL

	Variable	Pre-O.S.	During O.S.	Post O.S.	Variables Similarly Ranked
	Withitness	Low	High	Low	Clarity
	Overlappingness	Low	High	Medium	Total response, momentum, persuasiveness, warmth
	Smoothness	High	Low	Medium	
	Momentum	Low	High	Medium	Total response, overlappingness, persuasiveness, warmth
	Clarity	Low	High	Low	Withitness
	Persuasiveness	Low	High	Medium	Total response, overlappingness, momentum, warmth
	Warmth	Low	High	Medium	Total response, overlappingness, momentum, persuasiveness
	Empathy	High	Medium	Low	
Response	Cat. 1	Medium	High	Low	Cats. 2, 5, 6, total initiation
	Cat. 2	Medium	High	Low	Cats. 1, 5, 6, total initiation
	Cat. 3	Low	Medium	High	
	Total	Low	High	Medium	Overlappingness, momentum, persuasiveness, warmth
Initiation	Cat. 5	Medium	High	Low	Cats. 1, 2, 6, total initiation
	Cat. 6	Medium	High	Low	Cats. 1, 2, 5, total initiation
	Cat. 7	Medium	Low	High	Cat. 4
	Total	Medium	High	Low	Cats. 1, 2, 5, 6
	Cat. 4	Medium	Low	High	Cat. 7

incidence of the total response categories during outdoor school. The pattern of ranking the two variables was similar pre- and post-O.S.

These data supported the positive side of the contradictory results summarized by Dunkin and Biddle (1974: 131). While the ranking for warmth did not coincide with the elements of teacher response, the incidence during outdoor school was highest for warmth and Cat. 1 (accepts feelings) and Cat. 2 (praise), which are seen as significant low-inference aspects of teacher response. Warmth was not comparatively ranked with total teacher initiation, but the highest incidence and rating were during outdoor school, providing some evidence which would negate the early theory posited by Lewin, Lippitt, and White (1939) that warmth and directness (initiation) were inversely related.

The evidence in the present study supported the later theories of McCandless (1961) and L. Smith and Hudgins (1964) who considered the two variables unrelated. Clearly, further investigation is needed to discover the nature of the relationship. Warmth and criticism do not parallel each other but, during the outdoor phase, Teacher C's high rating for warmth was contrasted with the lower incidence of criticism which would support a popular but unconfirmed view of warmth and criticism.

The rankings for clarity did not coincide with those of Cat. 5 (lectures), Cat. 6 (gives directions), or total initiations, but the relationship is worth investigating further. Clarity was rated higher at O.S. than regular school, which supported one side of the mixed results for three teachers noted by Blocksidge (1978). Clarity is a factor in the learning-by-discovery model in which a degree of vagueness is expected (Worthen, in Travers, 1973:61). Teacher C did not reveal a discovery-learning style during outdoor school in her rating for clarity or the incidence of questioning which was low.

The low rating for empathy for Teacher C was generally in keeping with the low recorded frequencies of the low-inference variable "accepts feelings." The ranked frequencies did not parallel the ratings, but the lowest rating for empathy was after outdoor school when a very minimal incidence of the teacher accepting feelings was recorded. The contrast between the ratings for warmth and empathy was indicative of the independence of those two variables.

The inverse relationship between overlappingness, momentum, persuasiveness, warmth, total response, and smoothness was not clear, but the low rating for smoothness at outdoor school may have indicated the difficulty of maintaining that quality outdoors and "on the move." Empathy inversely varied with accepting ideas which would indicate that accepting ideas does not depend on the teacher being empathetic. The low-inference variables--

teacher lectures (Cat. 5), gives directions (Cat. 6), and total teacher initiation--inversely varied with teacher criticizes (Cat. 7) and teacher questions (Cat. 4), which did not clearly show any pattern apart from those already alluded to.

Presage-Process Data

This section examines the interrelationship of variables from two segments of the Dunkin and Biddle (1974) model for the study of teaching (Figure 1, page 8). The presage segment deals with formative data, training experience, teaching experience, and teacher properties. The process segment deals with teacher behaviour under (a) HITB and (b) FIAC data. Various researchers, including Dunkin and Biddle (1974), have considered the importance of the interrelationships between segments. In this case, Teacher C's preparation and experience are examined in the light of her performance in the classroom and outdoors.

Teacher C was a 27-year-old female with three and one-half years' teaching experience and undergraduate degrees in music and education. There was a complete absence of evidence that this teacher accepted student feelings during all observed mathematics sessions. Other observations made of her teaching would indicate that her performance outdoors differed from her performance indoors, as measured by two observational tools. In all categories except questioning, accepting or using student ideas, and criticism, and for all variables but smoothness, she was credited with displaying higher incidence of the behaviour during outdoor school compared with the average indoor academic lesson. The MTAI score indicated that she was at or below the 50th percentile when compared with teachers who had similar training and situation.

Dunkin and Biddle (1974:124) noted that there were contradictory results for the relationship between teacher scores on the MTAI and teacher indirectness. Teacher C's frequency percentages for indirectness-response were minimal (never more than 11.7% of total talk) whereas she was placed at or below the 50th percentile on the MTAI. These data would indicate that she placed no higher than 50% of the population on the autocratic-democratic continuum and she engaged in a small (11.7%) amount of talk intended to encourage children to initiate more talk. Teacher C's data did not clarify Dunkin and Biddle's picture of contradictory relationships between the MTAI and teacher response. The same authors reported that teachers use little criticism, which was supported by data from Teacher C. Criticism, according to Dunkin and Biddle (1974:131), was not seen to be related to MTAI scores; thus, the relationship was considered to be irrelevant.

Context Data

1. Student formative experiences are shown in Table 29.

Table 29

TEACHER C: CONTEXT DATA

Age/Grade		No. of Students*	% of Total Class
Age:	9 years	7	26.9
	10 years	17	65.4
	11 years	2	7.7
Grade:	5	26	100.00

*Sex: 18 girls, 8 boys; Ratio: 9:4; Mean age 9.8 years

2. Student Properties

The students of Teacher C were not included in the system-wide testing sample which examined achievement in the vocabulary and reading comprehension as well as the mathematical competencies of concepts, computation, and application (Tables 30, 31, 32). From the results for Grades 3 and 6 it may be presumed that Grade 5 students were at a comparable level when the scores for verbal ability (Table 30) are considered. With the exception of some mathematical competencies and the CCAT non-verbal scores, it may be presumed that the students of Teacher C were equal to or superior to the median scores for the total Calgary public

Table 30

CCAT GRADE 4, TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM, RELEVANT CLASSES, AND STUDENTS OF TEACHER C

Total System 1979-1980	Students Themselves 1978-1979	School Grade 4 1979-1980	Teacher C Grade 4 1978-1979
Verbal			
N = 6568	N = 5	N = 21	N = 12
min. = 9	min. = 51	min. = 42	min. = 40
max. = 98	max. = 86	max. = 82	max. = 82
med. = 64.4	med. = 68.0	med. = 65.3	med. = 68.5
Non-Verbal			
N = 6537	N = 4	N = 21	N = 12
mix. = 8	min. = 71	min. = 35	min. = 44
max. = 80	max. = 78	max. = 78	max. = 80
med. = 67.3	med. = 75.0	med. = 67.0	med. = 66.5

CCAT: Canadian Cognitive Abilities Test

Table 31

CTBS GRADES 3 AND 6, TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM AND THE SCHOOL: TEACHER C STUDENTS OMITTED

Grade 3*		Grade 6*	
Total System	Total School	Total System	Total School
Verbal		**Verbal**	
N = 5922	N = 0	N = 5833	N = 23
min. = 1	min. = -	min. = 1	min. = 15
max. = 31	max. = -	max. = 45	max. = 41
med. = 20.3	med. = -	med. = 28.0	med. = 30.2
Reading Comprehension		**Reading Comprehension**	
N = 6290	N = 24	N = 6177	N = 22
min. = 1	min. = 14	min. = 4	min. = 22
max. = 59	max. = 54	max. = 72	max. = 64
med. = 32.0	med. = 43.5	med. = 39.4	med. = 42.5

*All data 1979-1980

CTBS: Canadian Test of Basic Skills

Table 32

STANFORD MATHEMATICS TEST SCORES FOR CALGARY PUBLIC SCHOOL SYSTEM AND RELEVANT CLASSES: TEACHER C STUDENTS OMITTED

	Grade 3			Grade 6		
	Total System 1979-1980	School /Class 1978-1979	School /Class 1979-1980	Total System 1979-1980	School /Class 1978-1979	School /Class 1979-1980
Concepts	N = 6206	N = 17	N = 24	N = 6098	N = 28	N = 26
	min. 1	min. 9	min. 7	min. 1	min. 8	min. 10
	max. 32	max. 24	max. 28	max. 35	max. 35	max. 31
	med. 18.4	med. 17.7	med. 19.8	med. 24.3	med. 25.2	med. 20.5
Computations	N = 5729	N = 0	N = 0	N = 5744	N = 28	N = 26
	min. 1	min. -	min. -	min. 5	min. 11	min. 10
	max. 36	max. -	max. -	max. 45	max. 43	max. 43
	med. 20.2	med. -	med. -	med. 31.6	med. 32.5	med. 26.5
Applications	N = 6262	N = 17	N = 24	N = 6006	N = 28	N = 26
	min. 1	min. 9	min. 5	min. 2	min. 6	min. 7
	max. 28	max. 27	max. 28	max. 40	max. 39	max. 36
	med. 19.6	med. 21.7	med. 22.2	med. 27.2	med. 29.0	med. 25.5

school system.

3. School and Community Context

The Calgary public school in which Teacher C taught had a student enrolment in the elementary section of 145 and in the junior high school section of 204, in 1979. The population of the city of Calgary was about 530,800 in the same year.

As the school boundaries were not fixed, a number of junior high students were bused to the school while the elementary school enrolled only local children. Parents of students in Teacher C's class generally supported outdoor education as was evidenced by the fact that all but two of the children were allowed to attend outdoor school, which entailed a fee of $20. per child.

4. Classroom Context

The classroom was a self-contained unit reserved for all Grade 5 students in the school. The children occupied the same seats and desks for most of the period during which the study was made. The plan sketch (Figure 12) shows the main features of the classroom which included rows of desks facing the "front." Various pieces of children's art adorned the walls. One whole wall was taken up by windows which were between four and eight feet measured from the floor. The mobile nature of the outdoor setting did not lend itself to a sketch.

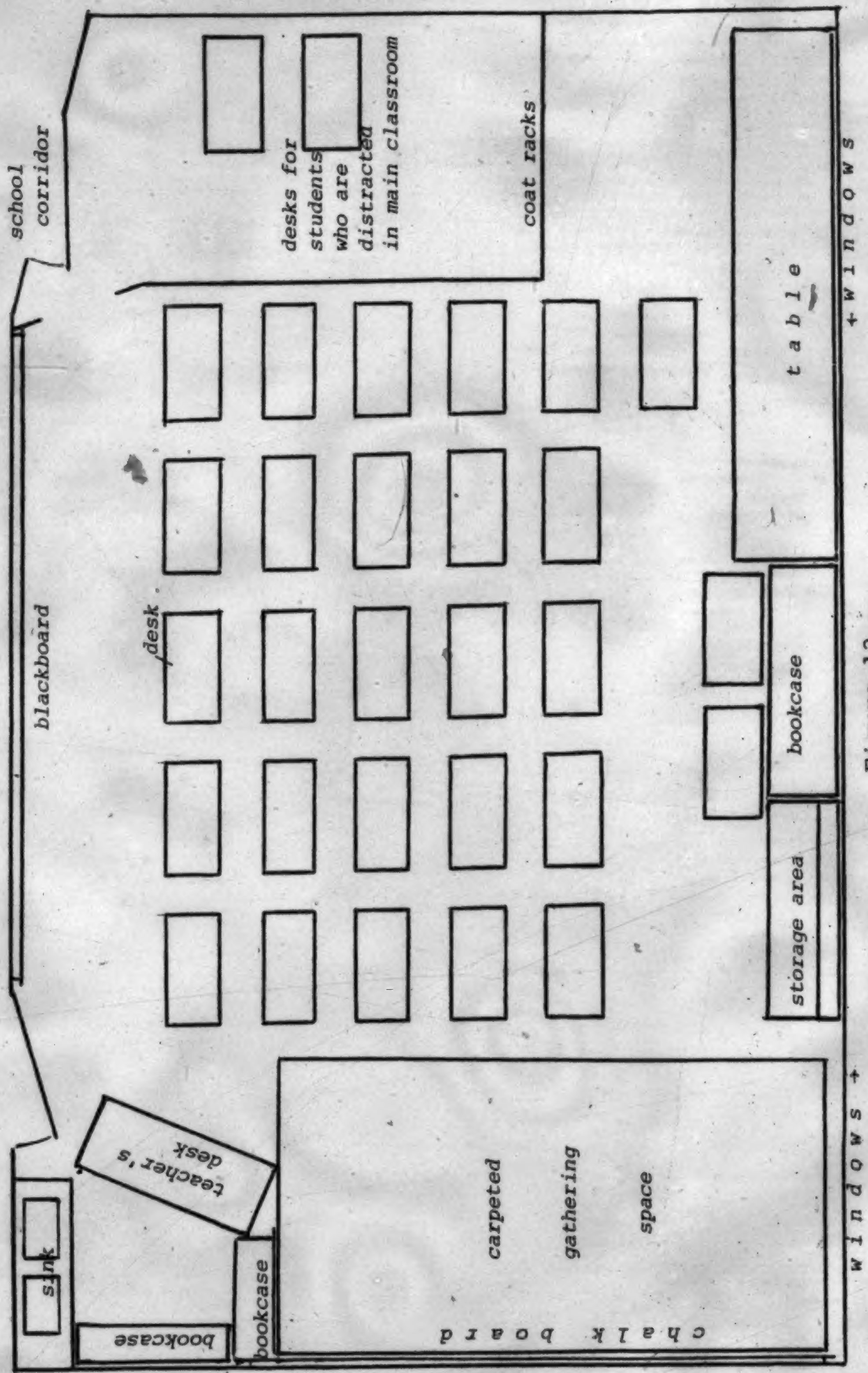

school corridor
desks for students who are distracted in main classroom
coat racks
windows
table
windows
blackboard
desk
bookcase
storage area
windows
carpeted gathering space
chalk board
teacher's desk
sink
bookcase
bookcase

Figure 12
Teacher C: Classroom Plan Sketch

5. Outdoor Context

The outdoor school was conducted at Camp Horizon near Bragg Creek, Alberta, a small rural town of about 1000 people. The environments described in the environment inventory (Figure 13), the log of prominent scenes, and the "day in the life of a classroom teacher at outdoor school" did not have sufficient permanency to allow a sketch to be meaningful. The day began and ended in the dormitory. Breakfast and supper were taken with the larger group in the main lodge. The study group hiked along a road with a visit to a drilling rig and a trip to a beaver pond via the river bank. The evening craft session was spent in the craft shed and the campfire was held in the dining area of the main lodge.

6. Classroom/Outdoor Contexts

The classroom and outdoor context were viewed as being distinct from each other. An inventory of each environment is presented in Figure 13 in order that differences may readily be seen.

The two environments had distinct effects on the children. The school site was very familiar to them because they had attended the classroom during regular school days for approximately 10 weeks prior to the observation period. On the other hand, they had occupied the outdoor site only about 24 hours. In addition to the novelty of the site, the class was mobile, hiking as it did during the environment

Classroom: Mathematics	Outdoor School Site: Hike
Date: 7 November 1979; 9:15 am	Date: 22 November 1979; 9:15 am
Organization of Total School	Organization of Outdoor School
Self-contained classroom. Single grade per classroom in elementary school. Jr. High included a recent bilingual program.	Grade 4s attended two days (Tues. & Wed.); Grade 5s attended three days (Wed., Thurs, Fri.); Grade 6s attended five days. Special classes attended three days.
Organization of Class	Organization of Class
Generally taught as an entity by the classroom teacher with exception of science & health. Up to 27 students.	Each class functioned separately from the other grades with the exception of special class students who joined those of a comparable age; 30 students, 3 teachers, and the observer.
Air	Air
Still; gentle air-conditioning.	Slight breeze, sunny
Lighting	Lighting
Fluorescent; windows along one wall.	Sky clear; occasional clouds.
Humidity	Humidity
Low	Medium
Floor	Ground
Hardwood, with a square carpet in space.	Gravel road; open shrub
Ceiling and Walls	Surroundings
Painted; a number of chalkboards and children's artwork on display.	Mixed-wood, open forest.

Figure 13

Teacher C: Environment Inventory

Behaviour Setting	**Behaviour Setting**
Classroom boundaries desks, chairs, gathering space on floor. Academic work required. Bells, timetables, and routines maintained atmosphere.	Gravel road, ditches, and fringes of forest. No academic requirements. Walking expected, informal grouping allowed. No particular topics of conversation.
Behaviour Objects	**Behaviour Objects**
Books, pens, pencils, desks, chairs, chalkboard, lockers.	Day packs; natural objects en route.
Standing Patterns	**Standing Patterns**
Desks for seat work; gathering space for disengaged students.	Walking on left side of road, loosely grouped.
Period of Observation in Daily Plan	**Period of Observation in Daily Plan**
Morning, after opening announcements and before social studies lesson.	Morning, shortly after breakfast, en route to exploratory gas-drilling rig; day-long hike lay ahead.
Place in Weekly Plan	**Place in Weekly Plan**
Tuesday	Thursday
Roles of Specialists	**Roles of Specialists**
The class normally met with V-P for science and physical education, and with another teacher for health education.	Two extra teachers accompanied class: (1) V-P who normally taught science and phys. ed.; (2) a permanent O.S. teacher [the observer was also viewed as a teacher by the students].
Interaction Patterns	**Interaction Patterns**
Boys and girls, the teacher, and the observer.	Boys and girls, the teacher, the V-P, the resident O.S. teacher, and the observer.
Timing	**Timing**
Early morning.	Early morning.

Figure 13 (continued)

inventory. As the walk proceeded, children moved singly or in small groups with varying speeds, sometimes racing ahead, at other times lagging behind. Mostly, the group stayed on the gravel road but occasionally individuals showed their independence by leaving the main body for diversions into the ditches and shrubs at the roadside. The total atmosphere of the hike was relaxed, with flexible boundaries and rules, and yet the teacher, although tolerant of a wider range of behaviour, saw fit to recall those who strayed too far from the group. By contrast, the school classroom called for "arithmetic-like" behaviour within the confines of the school room. During the arithmetic lesson the students were in various stages of understanding and motivation as far as the concepts were concerned, while on the hike they were undertaking an adventurous excursion into relatively unfamiliar terrain, blindly following their leaders in whom they revealed absolute faith. They knew only that they were going to visit a gas exploration drilling rig and a beaver pond, eating lunch en route, and returning just prior to supper at 5:00 pm.

Student-Process Data

The percentage frequencies for Teacher C's lessons using FIAC data were shown earlier in Table 26, with student talk in Categories 8 and 9. Of the total classroom talk, students contributed for a mean average of 39.9% over all observed sessions. Prior to outdoor school students accounted for 47.2% of total talk, dropping to 32.6% during O.S. Following the outdoor session, their talk increased again to reach 47.2%.

Category 9 includes student initiating talk. The students initiated most before O.S., least during O.S., and between the extremes post-O.S. The data did not support the suggestions made by outdoor education authors that children may engage in more initiating talk during O.S. (J. W. Smith et al., 1972:45).

Category 8 includes student responses to teacher questions. The students exhibited most responses post-O.S., less pre-O.S., and least responses during O.S. There was no particular pattern associated with the relative frequency percentages in the two student talk categories.

More student talk occurred during the innovative social studies SPEDS program than there was in any other program; library ranked second, mathematics was third. Outdoor school had the lowest frequency percentage. The highest incidence for a single lesson was for SPEDS, while the single lowest incidence was for a mathematics lesson. The highest mean average frequency percentage for student-initiated talk was during the SPEDS lessons, library ranked second, outdoor school third, and mathematics had the lowest mean average. In Cat. 8 (student response) the highest frequency percentage mean average was for mathematics, outdoor school ranked second, SPEDS was third, and library had the lowest mean average. The highest frequency for any one lesson was during mathematics and the lowest was during library period.

Although an absolute inverse relationship between Cats. 8 and 9 did not exist, it would be appropriate to observe that as Cat. 9 increased in frequency, Cat. 8 tended to decrease. The SPEDS program revealed a high incidence of student initiations. The relatively high frequency was appropriate to the purpose of the lessons which encouraged children to speak at length on the topics selected. Mathematics, on the other hand, did not give scope for student initiation, hence the higher incidence of responses in these sessions.

Context-Student Process Data

The context-student process data may be summarized as a class made up predominantly of girls ranging in age from 9 to 11 years, but mostly 10-year-olds. Students spoke more than their teacher in social studies and library sessions; otherwise, the teacher talked more than the students. Students spoke more before and after, than during outdoor school. They engaged in more initiating talk than mere response during the entire period, but they were more active in Cat. 9 prior to outdoor school and in Cat. 8 afterward. The highest single incidence for either category, in any session, was for Cat. 9 during SPEDS before outdoor school.

Teacher and Student Process Data

Teacher and student-reported data from HITB and FIAC instruments were set out in Tables 25, 26, 27, and 28. At the very hub of teaching and learning is student and teacher talk. The process segment was identified as a key element in the Dunkin and Biddle (1974) model (Figure 1, page 8).

Data indicated that Teacher C engaged in more talk about student feelings, praising, lecturing, and direction giving, while at the same time, she was coded as exhibiting greater withitness, overlappingness, momentum, clarity, persuasiveness, warmth, and empathy during O.S. Throughout the outdoor phase, the mean average student talk ranked below the frequency percentage for student talk before and after the experience which were equal. Student "response" during O.S. was less than frequencies recorded before or after the outdoor phase.

Total student talk did not correspond with the ranked frequency percentage for any teacher category. Student "response" frequency rankings corresponded with the ranking for teacher's questioning and criticism. Student "initiated" frequency rankings corresponded with the ranking for smoothness.

FIAC Categories	Pre- O.S.	During O.S.	Post- O.S.
Student Cat. 8 (response)	Medium	Low	High
Teacher Cat. 4 (questions)	Medium	Low	High
Teacher Cat. 7 (criticism)	Medium	Low	High

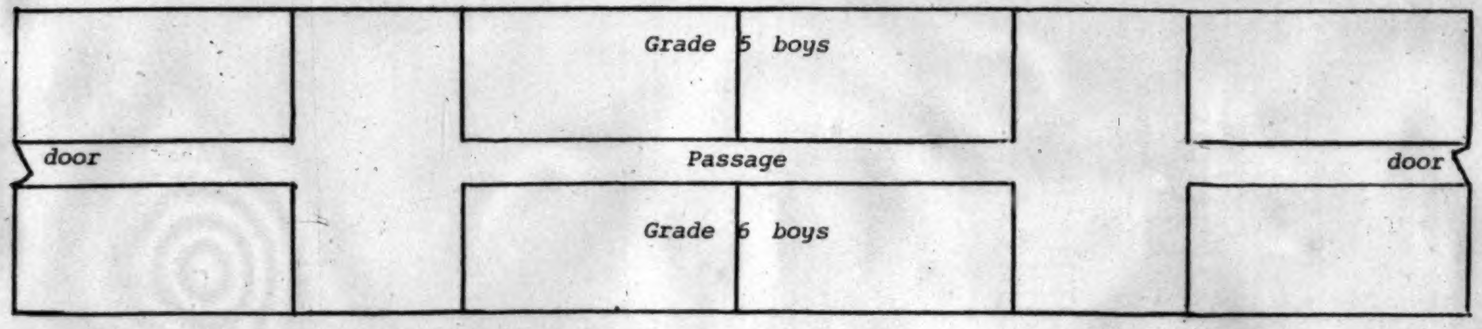
Teacher "questions" and student "responses" are closely related because of the nature of question-and-answer associations. Teacher criticism was not associated with the other two variables for any obvious reason.

Total student talk shown in Table 26 may be compared with teacher response and teacher initiation. Flanders (1974) theorized that indirect teacher talk (response) encouraged a higher incidence of student initiation. Data derived from the students and Teacher C did not support that theory but, rather, the contrary, with total student talk (Cats. 8 and 9), student initiation (Cat. 9), and student response (Cat. 8) recording the lowest incidences during O.S., while teacher responses were highest during the outdoor phase. Total student talk, Cats. 8 and 9, were inversely ranked with clarity and withitness. Student initiating talk (Cat. 9) ranked inversely with total teacher response, overlappingness, momentum, persuasiveness, and warmth. Student responses (Cat. 8) ranked inversely with total teacher initiation, accepting feelings (Cat. 1), praises (Cat. 2), lectures (Cat. 5), and gives directions (Cat. 6). These data would indicate that, as Teacher C exhibited higher percentages or ratings of the variables, the students' talk diminished.

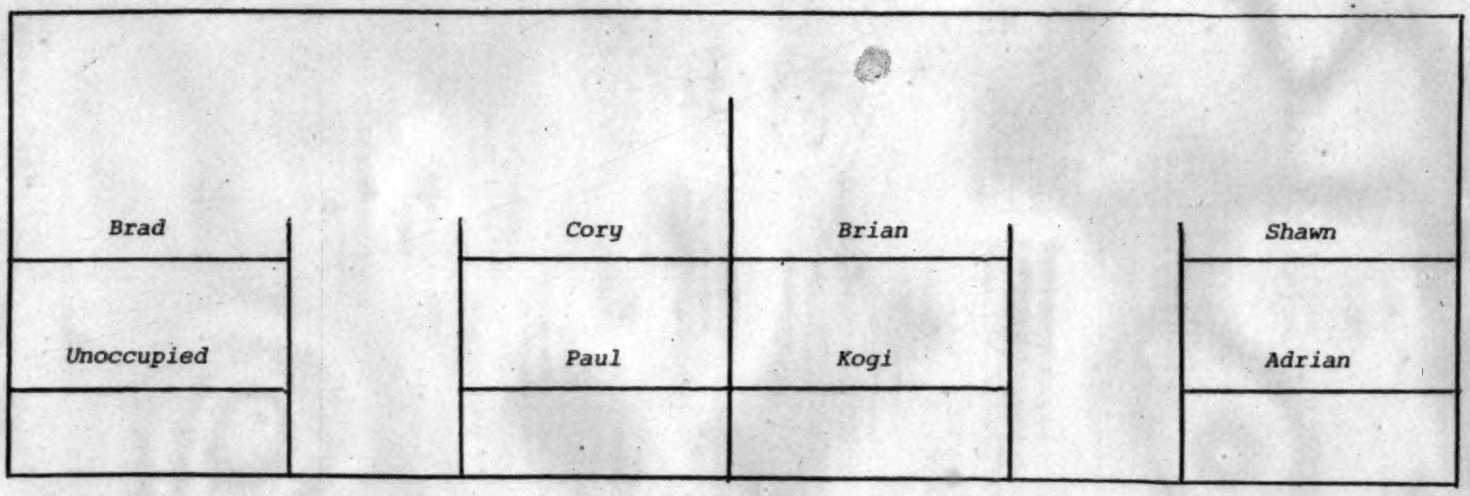
Context-Process Data

The following considers the behaviour of teacher and students in the context of regular school and outdoor school. The main thrust of this aspect of the study was to observe the interaction of the teacher and students in the context of classroom and outdoor setting. The instrument for primary data collection in this segment was the ethnographic record fashioned after the model suggested by Johnson and Gardner (1979). Table 33 contains a "log of prominent scenes," a summary of highlights drawn from the sample days studied. The log is followed by two samples: "a day in the life of a classroom teacher at regular school" (Table 34) and "a day in the life of a classroom teacher at outdoor school" (Table 35). Findings are discussed and interpreted below.

The class experienced a much longer day together during outdoor school than at regular school. They slept in two separate groups, one of boys and one of girls (see Figure 14), but their waking hours were spent together with classmates of either sex. The waking period amounted to 15 hours together. At regular school, the time students spent with peers amounted to about 5 hours daily. The segments as divided by mealtimes were approximately the same


Grade 5 boys
door
Passage
door
Grade 6 boys

PLAN VIEW


Brad
Cory
Brian
Shawn
Unoccupied
Paul
Kogi
Adrian

FRONT VIEW, GRADE 5 BOYS

Figure 14

Teacher C: Outdoor School Bunk Arrangements

Table 33

TEACHER C: LOG OF PROMINENT SCENES AT REGULAR AND OUTDOOR SCHOOLS

Regular School	Time	Outdoor School
Tuesday, 13 November 1979 (8:30 am - 3:20 pm)		Thursday, 22 November 1979 (7:30 am - 10:15 pm)
	7:30	Boys getting washed and dressed.
	8:30	Breakfast for all.
Teacher arrives at class.	8:50	Children and staff pick up lunch items.
Children asked to read silently.	9:05	Leave lodge for hike.
Arithmetic seat work assigned.	9:18	Hiking and interacting along the road.
Begin social studies.	9:52	Hiking and interacting along the road.
Recess.	10:10	Arrive at exploration drilling rig.
Teacher goes for recess (phones a parent).	10:20	Tour of site.
Teacher returns to class & issues various assignments.	10:34	Tour of site.
Class goes to library.	11:02	Tour of site.
Class in library.	11:30	Class leaves drill site walking to the river,
Class returns to room.	12:00	Arrival at river.
Teacher goes for lunch in staff room.	12:10	Lunch time beside river.

Table 33 (continued)

Regular School	Time	Outdoor School
Teacher at lunch.	12:30	Crushed-rock paint applied to faces.
Teacher at lunch.	12:45	Finish lunch.
Afternoon school begins.	1:13	Hike.
Teacher leaves; vice-principal arrives.	1:20	Hide and seek game.
Science lesson begins.	1:30	Hide and seek game.
Teacher returns.	2:00	End of game.
Reading assigned.	2:10	Resume hike.
Class goes to health lesson.	2:45	Arrive at the foot of a hill.
Class at health lesson.	3:00	Hike to beaver site.
Class returns to own room.	3:15	Hike to beaver site.
Class/teacher leave school.	3:20	Hike to beaver site.
	3:30	Arrive at beaver site.
	3:55	Hike back to lodge.
	5:15	Supper for children/staff.
	6:00	Quiet time; teacher showers.
	6:45	Begin craft activity.
	7:50	Parents tour craft area.
	8:05	Children clean up craft area.
	8:15	Campfire.

Table 33 (continued)

Regular School	Time	Outdoor School
	9:15	Hot chocolate and toast.
	9:40	Children bid farewell to parents and go with counsellor to the dormitory.
	10:00	Teacher arrives to say goodnight.
	10:10	Teacher leaves.
	10:15	Lights out; counsellors remain to supervise.

Table 34

TEACHER C: A DAY IN THE LIFE OF A CLASSROOM TEACHER AT REGULAR SCHOOL

Inference	Time*	Noise Level†	Event
Students like to enter room early.	8:50	3	C goes to desk. Students ask her why she was not early.
Adrian & Ellen seeking attention	8:53	4	Adrian blows trombone. Ellen calls to teacher.
Students busy with different projects (art/homework).	8:55	3	C welcomes Shawn who has been away sick. Shawn smiles in response.
Grade 5s appear not to notice.	8:58	2	Announcements over PA re Jr. High sports. C asks students to listen to announcements.
	8:59	2	C goes to cloakroom.
Students take long time to settle.	9:00	2	C announces free reading.
	9:02	1	C motions to boys to stop sitting on only 2 legs of their chairs. As soon as C turns away, Cory resumes balancing on 2 chair legs.

---

*(13 November 1979; 8:30 am - 3:20 pm)

†Noise level key: (Tikunoff et al., 1975)

Level	Description
4	Unacceptable to teacher
3	Acceptable to teacher but not to observer
2	Acceptable to teacher
1	Small amount
0	Silence

Table 34 (continued)

Inference	Time	Noise Level	Event
Everyone appears to respect quiet time.	9:08	0	Group settles down to quiet time. Debbie (a native Indian) reads an Indian history book. Stephanie, Adrian, Shawn, Debbie, Heather, Teresa, & Bev in desks; remainder on carpet.
		1	Stacey & Adrian whisper whole time.
Teacher talks to "group" rather than picking out individuals.	9:10	2	General criticism of group by C for not reading. Silence, followed by naming Susan for not reading.
C has a lot of preparation to do & needs class time to catch up.	9:13	2	Brian & Cory sent back to desks for balancing on 2 chair legs.
Boys trying teacher to see how far they can go.	9:14	2	Brian & Cory's chairs quickly filled by 2 more boys who also balance on 2 chair legs.
	9:15	2	Two new boys sent to desks. Stephanie leaves room without asking, while Jennifer returns.
Seat work in math. not a lesson as such.	9:18	1	Assignment in STA Math begins work. Kelly and Paul argue about being moved. Adrian told to return to desk from rug.
Book sharing is used as excuse to fraternize.	9:23	1	Bev & Stephanie have commandeered Adrian's desk in order to share a textbook.

Table 34 (continued)

Inference	Time	Noise Level	Event
Students taking a long time to settle.			
Expectation level revealed in class.	9:25	1	C leaves desk to check on Stacey, who is warned not to attempt #5 because of difficulty. Only Brad & one other student remaining on carpet. C patrols class checking on work; fetches a new math book for Ellen.
Teacher ready to perform tasks of which students are capable.	9:30	1	C clears a table to allow students to work in group.
	9:32		Very pretty nurse enters. Paul & Shawn say, knowingly, "that's the nurse." Smirk.
	9:33	1	Nurse speaks to C and leaves.
C controls new stock.	9:34	1	New book handed out. Paul asks observer how to spell teacher's name.
	9:35	1	Social studies assignment placed on board.
Some students want to change subjects immediately.			Most students working at math. but note social studies assignment.
	9:37		Heather & Kelly talk to Debbie about Indians.
	9:39		A wolf whistle is heard, goes unchecked (unsure of source).

Table 34 (continued)

Inference	Time	Noise Level	Event
C shows interest in Debbie, even though she is off topic.	9:40	1	Debbie shows Indian book to C. They chat about it.
There is no evidence of discrimination against Debbie (a native Indian). Some evidence of dislike for Ellen, who has trouble learning & is different in appearance.	9:41	1	Jennifer, then Stacey, go for help in math. Homework & math raised up the board to make room for social studies' assignment.
	9:42	2	Bell signals end of period. Some students use signal to stop math; some hesitate, but most keep going.
Presumably, bell was for Jr. High, not Grade 5s.	9:50	3	Math. continues. Adrian's trombone falls to floor. Debbie has a tug-of-war with another child. She wins tug-of-war, drops book near observer, who picks it up.
Noisy but orderly change.	9:52	2	C stops math., begins social studies assignment.
	9:53	1	C switches on lights. Some students have begun social studies; most have not.
	9:54	1	C returns to desk.

Table 34 (continued)

Inference	Time	Noise Level	Event
	9:55	2	Michael sent to rear table in an indirect way; i.e., "Can you see from the back table?"
	9:58	1	All fell silent & working. Michele enters & is welcomed by class.
C getting exasperated.	10:00	2	C: [for 3rd time] "Write down the whole thing." [temperature 22°C.]
Ellen smiles as she purposely touches desk, turning the rejection into a "bugging" situation in order to retaliate.	10:02		Adrian, rejecting Ellen again, "Oh, she touched my desk." Adrian moves to share with Bev. Adrian asked if she has finished.
	10:05	0	C: "Hands up those who have not finished the first board." [a few hands go up.] "Hustle!"
Students who normally shun Ellen use her.	10:07	1	Paul borrows Ellen's correcting fluid.
Convention of placing omitted word above rather than below the sentence.	10:08	0	Misinterpretation of a misplaced word. Assignboard No. 1 erased. Assignment choice of describing Indians or pioneers. All busy copying assignment from board.
Debbie appears to seek attention because she is Indian.	10:10	1	Debbie seeking attention from C.

Table 34 (continued)

Inference	Time	Noise Level	Event
	10:11	1	C: "Recess, you guys." [some (7) persist in working.] "Outside! Fresh air will do you good." Kelly & Debbie trying to get attention.
	10:16	1	Mike complains about having done the assignment previous year. C: "Good. You should do a good job!"
	10:22	1	C goes for coffee but en route stops at office to phone a parent.
Mike, though bright, finds it difficult to work in classroom setting. Has been placed in semi-isolation in the small cloakroom. Small responsibility to show trust in Mike.	10:34	2	Mike carries in C's tea. Erin goes to nurse. C lectures class on safety re "rough-housing."
	10:35	2	PA announcement re Jr. High report cards.
Mike present in classroom for copying assignment.	10:36	2	Social studies assignment to be copied off board; or work on report; or mathematics; or anything.
Students show consciousness of appearance; e.g. Stephanie combs hair. Puberty onset.	10:42	2	C checks Erin's gash received in playground. Paul shows morbid interest in wound. Bev & Stephanie join in.

Table 34 (continued)

Inference	Time	Noise Level	Event
			More & more going to look at wound.
Indirect way of asking students to return to their desks.	10:43	2	C asks them if their notes are complete.
C is calm throughout experience.	10:45	2	Great concern re Erin; blood on floor outside door.
	10:50	2	Students given 2 minutes to finish assignment.
	10:53	3	Paging telephone for C.
	10:55	4	Students asked to return to seats. Brief recap on explorers. Q & A series between C & Paul re a reaffirmation of reasons for report. C summarizes task: use library, find facts, write.
	10:57	2	Students raise questions re sleeping arrangements at upcoming outdoor school. Andrea expresses concern about sleeping arrangements at camp which go unanswered.
	11:00	2	C gives limit for obtaining research on the two social studies topics.
C speaks naturally, if insignificantly.		2	C: "Don't have a hairy fit." Directed to Sue or Stephanie with their reaction to the research task.

Table 34 (continued)

Inference	Time	Noise Level	Event
	11:02	3	Group leaves for library.
Librarian shows that in the library she is in charge.	11:09	2	Librarian briefs students on research task.
	11:15 to 12:00		[Ethnographic record suspended during HITB coding.]
	12:05		Return to class for lunchtime. Students leave.
A self-fulfilling prophecy.			C warns observer that she will be tired by the end. Break for lunch. C spends entire time in staff room.
	1:13	4	C & observer arrive at classroom where much squabbling and pushing occurs. Mike & Paul talking quietly together at Paul's desk.
	1:15	1	Vice-principal visits to announce gymnastics and volleyball practices.
	1:20	3	C leaves. Class continues with various conversations [within observer's earshot]; one involved Adrian defending Teacher C as the "best teacher in the world."
	1:25	3	Paging telephone rings. Kelly refuses to answer it, but Stephanie volunteers.

Table 34 (continued)

Inference	Time	Noise Level	Event
	1:30	1	Science: V-P conducts a discussion on two wiring systems for light bulbs and small batteries.
Interruptions generally taken in stride. Visiting teacher has staff status but is known to students by her given name.	1:33	1	Visiting teacher responsible for outdoor schools announces need for forms and money to be turned in to school.
	1:35	1	V-P recaps learnings.
Students pick up & capitalize on V-P's light-hearted, humorous approach.	1:40	2	V-P announces test in flippant manner. Andrea demands attention in mincing, baby voice.
	1:42	2	Cory and Kogi finish first.
	1:50	2	Most have finished test & have resumed experiments with light bulbs, wire, & batteries, with enthusiasm.
No real "finish" to science lesson.	2:03		C returns to classroom. Class discussion on what to do.
	2:10	3	C directs class to take out red book. Teacher's look deters Bev.
Many books displaced on purpose. Much "jacking" around.			[Temperature: 74°F]

Table 34 (continued)

Inference	Time	Noise Level	Event
	2:11	3	Bev blows a note on flute. Discussion of meaning of term "in hot water." Many personal examples cited by students.
		1	Class returns to calm without any undue excitement.
Everyone shares and listens.		2	C shows warm response to Shawn's account of being "in hot water."
	2:15	1	C shares Mike's feeling about his father's traffic violation; no condemnation.
	2:27		Discussion on the word "ambiguous."
Appears to be filling in time.	2:29	1	Paul asked to read; all given a chance in turn. Bev missed but picked up later. Jenny allowed to read more than others. All children enjoy reading aloud.
	2:42		Bell sounds.
	2:45	2	Class leaves room for a health lesson with another teacher. C has spare period; spends it in her room marking papers. [Observer joins class at health lesson.]
	2:50	2	Health teacher introduces police officer who shows film depicting young

Table 34 (continued)

Inference	Time	Noise Level	Event
			shoplifter stealing and being apprehended.
	3:10	2	Students' questions reveal their interest. Stacey, Jennifer, and Stephen question policeman about the possible outcome for shoplifting. He informs them about a juvenile detention home.
	3:12	4	All students very concerned when it is suggested that offenders may be taken away from home. Uproar breaks out.
			Paul speaks his opinion in a quiet moment.
No thought is given to the effect such a reference has on Debbie (who is a native Indian).			Other offences mentioned. Reference is made to "drunken Indians."
	3:15	2	Group returns to classroom. Teacher sees them dismissed for day. Last student leaves at 3:20. Teacher departs because she has a night class to attend.

Table 35

TEACHER C: A DAY IN THE LIFE OF A CLASSROOM TEACHER AT OUTDOOR SCHOOL

Inference	Time*	Noise Level†	Event
Grade 5	7:30		C was absent previous day owing to intestinal upset.
Boys establishing themselves with Grade 6 boys who have been at the centre for two days previous.	7:30	4	Getting washed & dressed.
	7:40	3	Mike, Paul, & Adrian playing electronic hockey.
	7:50	1	Leave dormitory to go to lodge.
	8:00	3	Shawn wants to be first in queue for breakfast.
	8:10	3	All but Mike go outside to fool around.
	8:15	0	Shawn returns to ring the bell.
C enjoys revealing feelings and	8:20	4	Line up for breakfast. Boys tease Brad about

---

*(22 November 1979; 7:30 am - 9:15 pm)

†Noise level key: (Tikunoff et al., 1975)	
4	Unacceptable to teacher
3	Acceptable to teacher but not to observer
2	Acceptable to teacher
1	Small amount
0	Silence

Table 35 (continued)

Inference	Time	Noise Level	Event
is willing to show affection.			wanting a goodnight kiss. C kisses Brad on cheek and hugs him.
	8:30	3	File in to receive breakfast cafeteria style. Scattered seating; Brian & Paul sit with Grade 6s. Most others remain close together.
Mounting excitement in anticipation of the day hike.	8:45	3	Grade 5s line up to make lunch.
Plea for togetherness.	9:05	1	Instructions from C re hiking & visit to exploratory drilling rig and nature walk.
Poor judgment in choice of route to road.	9:15	2	Leave lodge, descend steep bank of gravel to road. Brian falls and scrapes arm.
High excitement.	9:20	2	Hiking & interacting. C chatting with Kogi, Cory, Paul, & Kelly.
Adrian testing C for his independence.			C warns Adrian to stay on road.
All students similarly interested.	10:10	4	Students at rig all show interest & put questions to foreman & geologist.
			Watching rig from distance & examining rows of bits.

Table 35 (continued)

Inference	Time	Noise Level	Event
Teachers & students not quite sure who should go with whom.	10:35	4	C goes up to see rig close at hand accompanied by Debbie, Kelly, Michele, & Nora (all girls). [At this time, observer temporarily lost contact.]
Reassemble total group. Hike to lunch spot. No observations en route.	11:30	1	Depart for bridge. Various students walk with or drop back or run ahead of C. Much talking, occasional singing of campfire songs.
Staving off hunger. Evidence of treating everyone alike (e.g. one cookie each).	11:45	2	C shares bag of cookies with total group.
	12:00	3	Group arrives at bridge. Two leaders confer and agree to have lunch beside the river, further along the bank away from the road. Joined by 3rd leader, the school V-P.
Mindful of students hunger yet aware that bridge was poor site for lunch with dust & vehicles.	12:10	2	Lunch on river bank. Eating lunch, testing ice, begging for river water drinks.
A relaxed situation in which barriers are lowered as students paint their teacher (& each other). Laughter at results.	12:30	2	Later, the use of crushed rock & water to make various "paints" for faces of students and leaders.

Table 35 (continued)

Inference	Time	Noise Level	Event
Relaxed atmosphere.	12:45	2	Packing up lunch items, picking up garbage. Group is reminded of responsibilities when walking through area.
Paul challenges teacher's authority in a sly way.	1:00	1	Paul purposely steps into hole of wet sand to obscure animal prints.
Serendipitous event.	1:20	1	Pause in hike to play "hide & seek."
	1:25	0	Karen, who has learning difficulty, is the last to leave.
Competition in evidence.	1:55	2	Nora returns with three sticks. Bev returns with three sticks.
Hunting & chasing theme. Checking back for reassurance.	1:56	1	Cory returns; C hugs him.
	2:00	3	Gather in at sound of whistle.
	2:10	4	Prepare to continue the walk.
	2:45	1	Arrive at foot of hill to be climbed.
Students & teacher.	2:54	1	Arrive at top of hill. Sit in sunny spot facing south.
	2:56	1	Discussion about warmth led by C.
	3:00	2	Moving off toward beaver

Table 35 (continued)

Inference	Time	Noise Level	Event
			site. Occasional pauses to examine plants or negotiate obstacles.
	3:30	1	Arrive at spot where beavers are to be observed.
A peaceful change from the usual noisy classroom.	3:36	0	Sitting & listening to natural sounds.
	3:40	1	Shawn gives C a good answer, although not the one expected.
Restless students anxious to return to camp or at least move.	3:45	1	Brian & Shawn ask to leave "quiet spot." Are permitted to go to hillside to examine beaver cuttings.
Teachers allowing students to go ahead.	3:55	1	Kogi tries his leadership on rest of class & is successful in leading a small group down the hill & around the beaver pond en route to camp.
Least secure students remain with teachers.	4:00 to 5:00	1	Uneventful return to camp. Group very strung out. Karen & Ellen stay with teachers.
	5:15 to 6:00	4	Supper. Students distributed throughout dining room.
Rare break from students.	6:00 to 6:45		"Down time." C takes a shower.
	6:55	1	C arrives & busily

Table 35 (continued)

Inference	Time	Noise Level	Event
			distributes paper, oil, water, & receptacles for craft class.
Family links can cause anxiety even though the group has been gone but two days.			Susan & Andrea keep checking door & window for signs of their mothers' arrival.
	7:00	2	C leaves to take phone call.
	7:05 to 7:30	3	Several students arrive, one at a time.
Sex role stereotype challenged by C.	7:30		C returns & engages in discussion with Brad re cooking.
Ellen asserting herself. She is at bottom of pecking order.	7:37	3	Ellen has some harsh words & calls Jennifer & Barb "dodo brains."
Stephanie making a power play but only in fun.	7:41	3	Stephanie "tells" C to fetch water.
Students apparently unperturbed by visit.	7:50 to 8:00	4	Parents enter & tour the candle-craft making; chat with teacher, students, & each other.
	8:05	3	Students clean up craft area.
	8:15	4	Students & parents assemble in lodge for campfire singing led in part by C.

Table 35 (continued)

Inference	Time	Noise Level	Event
	9:15	3	Hot chocolate & toast.
Indication of teacher's pet.	9:20	3	C pats Brad on the head.
Affinity groups.	9:25	3	Noticeable that boys and girls remain with members of their own classrooms: Group 1: Shawn, Kelly, Andrea, Heather, Kogi. Group 2: Jennifer, Jenny. Group 3: Stephanie, and Nora H. Group 4: Debbie, Stacey, and Susan. Three odd individuals reremain separate from each other & the group: Ellen, Adrian, & Nora S. [All students not accounted for.]
Boys are still young in many ways.	9:40	4	Matt & Dean, high school counsellors, shepherd boys to dormitory for their 2nd & final night. Brad has a teddy bear.
	10:00	4	Teacher arrives to say goodnight.
Surrogate mother leaves.	10:10	3	Teacher leaves.
	10:15	2	Lights out; counsellors remain to supervise.

for both schools. The sub-divisions of the segments were quite different. The regular school episodes were of shorter duration (about 40 minutes each) and were announced by bells. The outdoor school episodes, in contrast, were longer and were subject to geographical and motivational determinants rather than temporal devices. The outdoor school experience had more spontaneous happenings where the aim of the exercise was more academic. It is beyond the scope of this work to determine the nature and comparative value of the learning outcomes, but in spite of the apparent distinction between the regular school academic activities and the outdoor school non-academic activities, there were instances in both settings of contrary content (for example, relaxed, informal interaction in the library and learning about an exploratory gas-well in the field).

Product Data

The CAQ (Hoffmeister, 1971) was used to measure the students' perception of Teacher C in two dimensions, as shown in the data below.

Acceptance-understanding dimension:

Pre-O.S.	Post-O.S.	Gain/Loss
N = 26	N = 24	
Σ = 110.960	Σ = 94.070	
$\bar{X}$ = 4.270	$\bar{X}$ = 3.920	-0.350

Problem-solving skill dimension:

Pre-O.S.	Post-O.S.	Gain/Loss
N = 26	N = 24	
$\Sigma = 103.390$	$\Sigma = 92.600$	
$\bar{X} = 3.980$	$\bar{X} = 3.860$	-0.120

The CAQ was used in both instances. Reliability data were not yet available for the questionnaire; however, by using the same form with the same subjects, one possible explanation for the difference was that any changes in the mean average scores for the two dimensions were attributable to changes in the perception of the students, or the behaviour of the teacher, or a combination of both. Teacher C was seen to decline in both dimensions after outdoor school. Whether or not the outdoor school experience was the key factor is not known at this time, but further investigation is warranted.

PART II

Introduction

In Part I, data for Teachers A, B, and C were presented in the presage, process, context, product model for studying teaching outlined by Dunkin and Biddle (1974).

The study of Teacher D was completed using descriptive records in a manner outlined by Doyle (1977, 1978). Data were recorded in field notes which were later transcribed as "a week in the life of a classroom teacher at outdoor school." Presage, context, process, and product data were not collected for Teacher D for several reasons.

Rationale for the study format of Teacher D:

1. Teachers A, B, and C represented samples of behaviour over a period of time spent in the classroom and at the outdoor school. At no time were Teachers A and B observed for a continuous period of time. Teacher C was observed for a full day at school and again at outdoor school. The lone researcher found it difficult to apply particular instruments like HITB and FIAC and maintain copious notes necessary for portraying a larger slice of life. A week-long, "descriptive" record was, therefore, maintained for Teacher D. A plan of the outdoor school site is sketched in Figure 14.

2. Teacher D was a substitute for the original choice because the original teacher had to withdraw for personal reasons at the eleventh hour. There were no opportunities to observe the teacher with the regular class because she was not their regular teacher. Her contact with students in the class had been through thrice-weekly physical education instruction. As well, after-school intramural and interschool activities had provided her with additional contact with selected students. An isolated week at outdoor school was chosen for Teacher D.

3. Teachers A, B, and C all attended outdoor

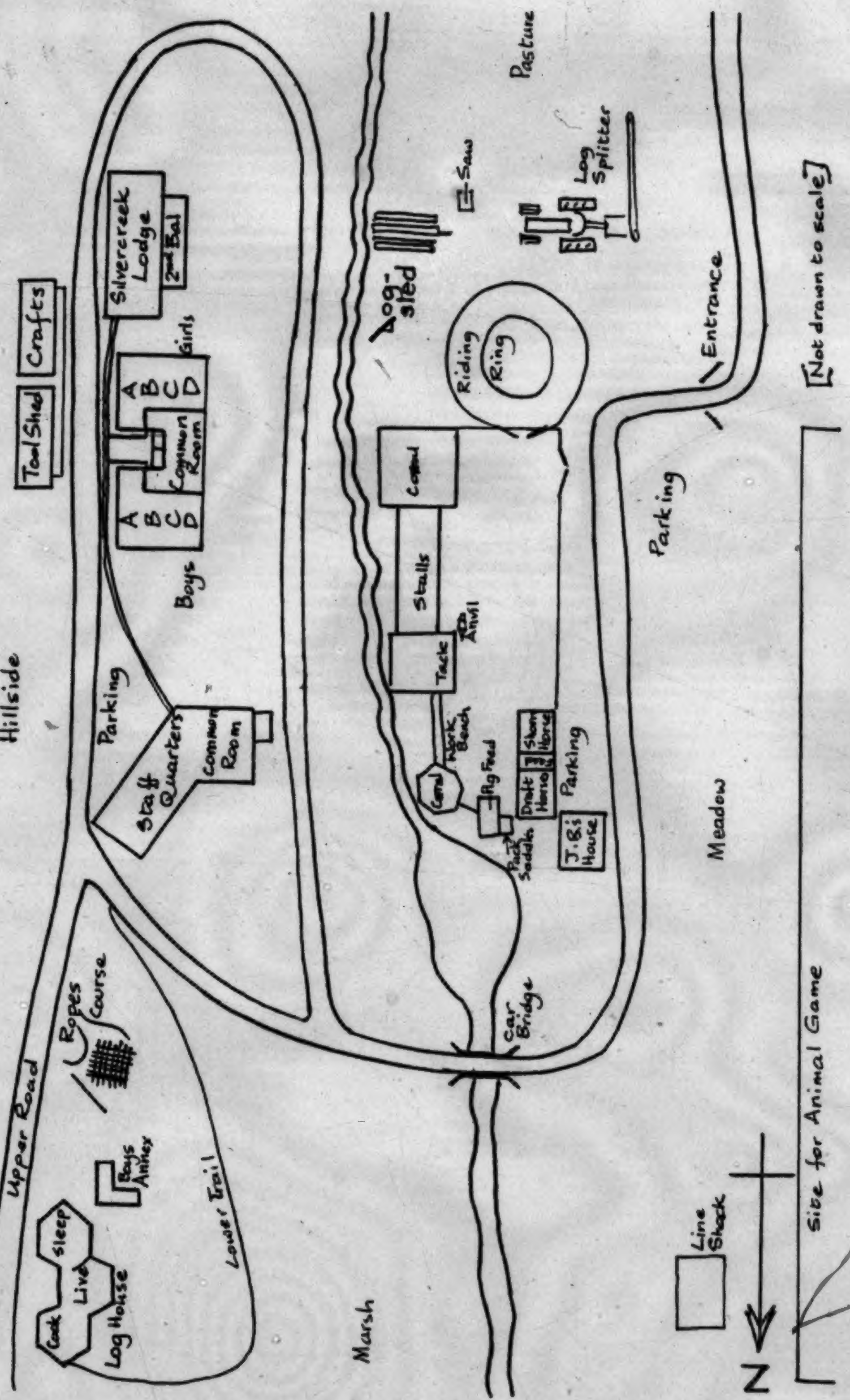

Hillside
Upper Road
Tool Shed
Crafts
Silvercreek Lodge
2nd Bal
A
B
C
D
Girls
Common Room
A
B
C
D
Boys
Parking
Staff Quarters
Common Room
Ropes Course
Boys Annex
Log House
Cook
Live
Sleep
Lower Trail
Marsh
Dog-sled
Saw
Log Splitter
Pasture
Riding Ring
Corral
Stalls
Anvil
Tack
Work Bench
Corral
Pig Feed
Pack Saddle
Draft Horse
Stan Horse
Parking
J.B.'s House
Car Bridge
Entrance
Parking
Meadow
Line Shack
N
Site for Animal Game
Not drawn to scale

Figure 15

Teacher D: Outdoor School Site Plan

schools which were partially supported but not sponsored by the Calgary school board. Teacher D and her class were part of a board-sponsored outdoor school with several distinctive features which the other three classes did not share. The features included the following:

(a) Outdoor school for Teacher D and her class was part of a larger organization. Two other schools sent classes and teachers to the centre during the same week. The classes were redistributed into study groups in a heterogeneous fashion.

(b) There were four residential outdoor teachers in addition to the four attending from the schools, making a total of eight staff for six organizational groups. Thus, two staff were "free" for the equivalent of three half days in the four-and-one-half-day period. The evening period was timetabled as well as mornings and afternoons. Teacher D's timetable was typical of the board-sponsored outdoor schools.

(c) Each teacher developed a particular core study (or studies) which she repeated with each of four groups. Teacher D was responsible for the "Ranch Study." In addition, she taught crafts for two evenings. She played a supporting role to another teacher during the "Pioneer Log Cabin" experience and a one-half day "Predator-Prey" game.

Teacher D

Teacher D was observed at outdoor school from Monday, 14 April 1980 to Friday, 18 April 1980, inclusive. Her timetable is shown in Table 36. Detailed, week-long observations follow, with Monday shown as Day 1, Tuesday as Day 2, Wednesday as Day 3, and so on.

Table 36

TEACHER D: WEEK-LONG TIMETABLE AT OUTDOOR SCHOOL

	Day 1 Monday	Day 2 Tuesday	Day 3 Wednesday	Day 4 Thursday	Day 5 Friday
Morning	Travel to Outdoor School	Log House (supportive role)	Preparation Time	Ranch Study 2	Predator/Prey Game (supportive role)
Afternoon	Preparation Time	Preparation Time	Ranch Study 1	Ranch Study 3	Ranch Study 4
Evening	Log House (supportive role)	Hay Ride Campfire	Crafts Campfire	Crafts Campfire	Campfire Travel Home

The detailed observations are interspersed with relevant discussion which enlarge on various episodes directly related to Teacher D's contributions to O.S.

Observations of Teacher D at Week-Long Outdoor School

Day 1, Monday Morning

08:30 Teacher D working in school hallway (outside her physical education office) on details for outdoor school. Preparing work for the substitute teacher who will replace her in the P.E. class. Fellow teacher stops by D's office to wish class a good trip.

08:40 D cleaning P.E. office. Fellow teacher visits to wish class a good trip. Phone call for D. Paged to receive it in general office (G.O.).

08:42 Secretary requests D to write a note to be read later on P.A. system. Principal offers congratulations to D following the success of her gymnastic contestants (whom she had coached) on Saturday, April 12.

08:45 D writes intermittently while discussing whether or not the publication of results (21 out of a possible 24 first-place ribbons) amounts to bragging. Results left with secretary for broadcast. D picks up first aid kit. Moves to hallway where she converses with other O.S. teacher regarding rendezvous for O.S. buses.

08:55 Secretary approaches D and fellow teacher in hallway and requests their expected time of return from

Day 1 (cont'd.)

outdoor school. Returns to G.O.; resumes talking about gymnastic meet.

09:00 Returns to P.E. office with mail. Class teacher gives D a student's name tag. D goes to staff room to pick up rubber boots. Returns to filing cabinet in P.E. office for a file of "outdoor ideas."

09:10 D goes to library to pick up large letters to be used in a school display notice, then to say farewell to Grade 2 teacher (with whom she daily travels to school).

09:15 D visits fellow O.S. teacher in hallway to check on luggage and busing arrangements. Returns to P.E. office prior to visiting gymnasium to bid farewell to fellow teacher.

09:19 D pauses to tape gym display notice on wall outside P.E. office.

09:22 Buses arrive at school.

09:23 D goes to G.O. and places report-card comments into other teacher's mail slots; then to kindergarten class to ask about report cards.

09:31 D returns to staff room to gather personal belongings.

09:34 D goes outside to buses where she plans to say farewell to busload of two Grade 6 classes.

09:40 Second bus arrives and D helps and supervises

Day 1 (cont'd.)

loading of luggage onto that bus. While loading proceeds, she chats in a supportive fashion with students (e.g., "That's a good big bag." "That's a nice backpack.") Talks with Shawn about his holiday in San Francisco.

09:52 Loaded buses depart. D returns to school for her luggage. Bids farewell to school principal.

10:00 D unlocks and enters school bus in which she and observer will travel to O.S. site. D starts bus.

10:05 Bus stops at a convenience store for placebos and chocolate bars.

10:15 D has bus serviced with gas and oil and has egg washed off windows. Pays bill.

10:30 D drives to Trans Canada-Crowchild Trail toward Cochrane, Alberta. Conversation between D (the driver) and observer (the lone passenger). Discussion generally concerns school, outdoor school, and university.

11:25 Pass through Cochrane; turn north on Highway 22.

11:55 Arrive at Dogpound Creek picnic site; locate entrance after several attempts.

12:00 Park bus and witness briefing of classes by D's fellow teacher. Also in attendance are two teachers and their students (from other schools). D exchanges pleasantries with the boys and girls.

Day 1 (cont'd.)

12:10 All passengers embark on buses.

12:30 Arrive at Water Valley; pause to top up gas.

13:00 Arrive at Silver Creek Ranch; transfer luggage from hired school bus to school-owned bus.

Discussion of Day 1
Departure for O.S.

Early preparations (08:30-10:00 hrs.). This episode typified Teacher D being drawn two or more ways. Affairs of the school tugged in one direction, whereas the O.S. pulled in the other. Even as Teacher D gathered her thoughts and belongings for O.S. she was completing school business (e.g., the gym meet results and report card comments were finished). She also tended to personal relationships (e.g., bidding farewell to fellow teachers). She took a file of "outdoor ideas" which could be perceived as back-up material for unanticipated situations when the teacher might have to supply activities and leadership extra to the planned occasions.

Reluctance to sever school ties was illustrated by Teacher D taking the display letters from the resource centre to "work on a display in her spare time" (which did not materialize).

In a school which sends two or more classes to O.S. there is a division of labour. In the case of Teacher D, the other teacher took charge of one busload of children while D remained behind to load luggage on a second bus; she then drove an empty bus which the school owned. The teacher was relaxed and convivial in spite of being pulled several ways and having a number of tasks to perform in a short time.

The bus journey (10:00-13:00 hrs.). Teacher D drove the bus for the first part of the journey, with the observer as the lone passenger. The seemingly never-ending list of "things-to-do" (prior to O.S. actually starting) persisted during the bus journey; e.g., a stop at a convenience store to buy chocolate bars and candy (which resembled lozenges to be used as placebos for imagined sickness at camp) for the children. Teacher D arrived late at Dogpound Creek where the children were assembling prior to leaving. The last-minute tasks and her careful driving combined to delay her. The children had finished lunch when D arrived, but she remained calm and pleasant, knowing full well that no harm had been done. Her colleagues had supervised the children throughout the journey and lunch.

The remainder of the journey from Dogpound to the destination was interrupted by the need, as a precaution, to fill the bus's gas tank before heading to O.S. Upon arrival at O.S. the luggage from the hired bus was transferred to the school-owned bus (which could be viewed as double luggage handling). No explanation was offered.

Day 1, Monday Afternoon

13:15 Lunch in lodge.

13:45 Staff quarters settling in.

14:10 Gathering in students' common room.

14:20 Introductions of all staff. Teacher D elects to be known as "Mrs. D" by her own school while the other schools may use her given first name.

14:27 Discussion of common rules. Counsellors introduce themselves by name and personal likes and dislikes. D listens attentively. Many rules covered. Personal medication requested for storage. Dismissal until trial fire drill would call everyone outside. Shannon asks D a question.

14:55 Fire Drill: Everyone gathers outside. D chats with several students on the boardwalk. Children, in four groups, leave on "Orientation Game" with their counsellors.

Discussion of Day 1
Arrival at O.S.

Familiarization phase (13:00-15:00 hrs.). The first hour was spent at lunch (without the children, who had eaten enroute). After depositing personal items in the staff quarters, Teacher D encountered her first challenge. The O.S. residential staff, being familiar with the whole situation, introduced themselves by their given first names. Teacher D, ambivalent about the situation, said:

> Teacher D: I should like to be known as Mrs. ____ by students at my school. The other children can call me _____ [given name] if they want to.

During the ensuing discussion of rules and the introduction of the counsellors, D listened intently, showing genuine interest. Medication was one topic, and D's interest was revealed later when she actively sought and stored medicines. At the conclusion of this episode, the children gathered outside prior to an orientation game with their counsellors. She revealed again how much at ease she was by chatting informally with the children:

> D: Shannon, did you enjoy your bus ride?
>
> S: Yes, Mrs. D. We went to the Cochrane Ranch.

Day 1, Monday, Late Afternoon

15:00 D retires to room in staff quarters to sort her personal and school items.

15:15 D joins group in staff common room where she discusses with Debbie (a resident teacher) the ranch study and the hay ride. D then sorts a box of material following classroom teacher's original outline.

15:40 Discussion about the role of the farm.

15:45 D attends to Dean, who has fallen off a ladder resulting in a twisted ankle. Others help with

Day 1 (cont'd.)

the first aid.

16:00 D and another teacher, K, discuss craft supplies.

16:07 D and K transport craft supplies to craft shop.

16:15 In craft shop, D and K discuss layout--arrange and rearrange chairs and tables.

16:25 Sounds of returning children reach ears of D and K.

16:30 D and K distribute craft supplies: water, paints, newspaper. Four students enter craft shop to hide.

16:45 More students arrive in order to retrieve items from stored luggage in small room next to craft shop. Several students eat snacks and leftover lunch.

17:05 D late for supper; hastens to lodge. After supper announcements are made.

18:15 Supper finished, D goes to staff quarters where she examines health forms. Conscientious effort to become familiar with problems.

18:30 D goes to lodge to gather up various student pills.

Discussion of Day 1
O.S. Preparation

Preparation time (15:00-17:00 hrs.). A good deal of this time was spent by Teacher D discussing with colleagues the plans in two areas assigned to her. Her late appointment to O.S. contributed to an insecurity with the curricular content, especially in her assigned areas. Her lack of confidence was evident in the following exchange with the resident outdoor school teacher (ROST):

> D: What do you think we should do in our ranch study?
>
> ROST: I think you should tour the area and show the kids how JB earns his living--or at least part of it--here at the ranch.

The teachers were interrupted by an emergency. One of the boys (not in D's school) had fallen off a ladder. Teacher D, nevertheless, showed genuine concern for his welfare and took a leading role in the administration of first aid.

Most of the remaining time was spent in preparation of the craft shop where, with a colleague, D prepared for the craft session to be given by the colleague that night. She revealed more confidence in these preparations as shown in the following extract:

> D: K, I'd like them to get their natural objects and bring them in at the very beginning.
>
> K: That's fine. What'll you do if they finish early?
>
> D: I brought some tongue-twisters if they get done early.

Suppertime (17:00-18:15 hrs.). D sits at a table with other teachers while counsellors sit with and supervise the students. The teacher was late for this meal. She had been behind time that day, all of which was part of the adjustment she had to make to the O.S. schedule.

Student welfare (18:15-18:45 hrs.). During this half-hour period, D read the health forms and located the students' personal medication which would have to be distributed at various intervals.

Day 1, Monday Evening

18:45 Teacher D, Warren (another ROST), two counsellors (Holly and Steve), plus the observer and a group of about 20 students assemble at fork in road, ready for walk to log house.

19:05 Group waits for stragglers; Warren takes charge. D talks quietly to occasional child.

19:15 Depart on lower trail. D trails at rear, talking informally. Pause on trail to examine pile of stone and wood. Teachers suggest that it is either a "stone boat" or a raised fireplace.

19:45 Stop by fallen tree, as dusk approaches, to sense natural world through eyes, ears, nose--a "quiet spot" exercise suggested by Warren.

20:05 Group arrives at log house and girls enter. Boys wait at east door for their sleeping bags which are taken to log cabin at S.E. corner where boys will sleep. Boys return to log house for evening activities.

20:30 D visits with boys in bay window.

20:40 D has her hair brushed by two female students.

Day 1 (cont'd.)

20:50 Utensils are replaced. Warren assigns three subgroups to make "Lefsa," a quilt, and ice cream--all by hand. D helps. A few non-joiners sit around the fireplace.

21:40 Lefsa is cooking, quilting continues and ice cream is thickening.

22:05 Ice cream eating; quilting into the second layer. D works on quilt while children cook Lefsa for her.

22:30 Campfire singing begins, led by Warren on guitar and D in supporting role.

23:00 Preparations for bed--girls to sleeping area, boys to log cabin with counsellor, Steve.

23:30 All is quiet--sign off.

Discussion of Day 1, Log House, Pioneer Episode

The evening (18:45-23:30 hrs.). During the entire log house experience, the leading role was taken by Warren (a resident outdoor school teacher (ROST)). On the walk to the log house, D tagged at the end, talking informally to several children. The informality continued into the log house where two female students asked D:

S: Can we brush your hair, Mrs. D?

D: Sure, it's a mess!

D also employed herself at the quilting frame for which she had volunteered. A number of children wanted to make her some "Lefsa," a bread-like snack. Students from the other schools were just as keen as those whom D knew.

Later, during the campfire, D sat between Juanita and Krista as "one of the girls," joining in the eating of home-made ice cream. "Is this ever good!" she exclaimed. Later, she sang songs with the others in a jolly manner.

Day 2, Tuesday Morning

08:00 D awakens, dresses, packs sleeping bag, and sits by fire with two girls.

08:05 Bathroom break.

08:18 Coffee by fire discussing sleep problems.

09:00 D supervises sleeping area cleanup.

09:05 D resets the quilting frame, then moves to the cooking area to supervise pancake making.

09:30 D still supervising pancake making.

09:45 Juanita burns her arm. D attends to the injury. Shelly and Krista help.

09:50 D at fire-pit, singing.

10:00 Breakfast. D supervising and serving.

10:30 Breakfast remains cleared; D helps.

10:50 Final check; then assembly for a group photograph before leaving.

11:10 D on the trail (the higher road) back to the lodge.

11:15 Arrive at the ropes course. Warren in charge, D helping, encouraging; finally attempting the course.

11:45 D makes first attempt at rope swing.

12:00 Group leaves for lodge.

12:10 Personal shower, etc.

12:30 Lunchtime. D skips lunch.

Discussion of Day 2
Morning at Log House

Early morning (08:00-09:00 hrs.). Teacher D dressed, rolled up the sleeping bags, and then sat by the stove with the same two girls, Juanita and Krista. Discussion revolved around sleep, as follows:

D: Did you sleep okay, girls?

J: No. I was too hot and the floor was hard.

K: I had this bad dream. I thought someone or something was moving around in the room. It was scary!

D: You needn't have been. Holly [a counsellor], Warren [a ROST], Mr. L [the observer], and I were all here.

K: Yeah, I know, but . . . .

Breakfasttime (09:00-11:00 hrs.). Teacher D supervised the pancake preparation, never taking over but giving the young cooks (Shelley and Juanita) guidance:

D: Put some oil in the pan, Shelley. Now wait till it begins to smoke.

S: Is it ready yet?

D: Is it smoking?

S: No.

D: We'll wait a bit . . . There it goes--now pour out the fat, er oil, into the cup there.

S: What do I do now--pour this in?

D: Uh-huh.

S: This much?

D: Right. Now spread it out thinner.

S: How?

D: Tilt the pan. That's it. Now wait till the holes show. Now, where's the flipper?

S: There. [indicates flipper near Juanita]

In handing the flipper to Shelley, Juanita touched the hot stove with her forearm.

J: Ouch! Ohohoooo . . .

D: Come here, Juanita. Let's see. Mmmm, it's not bad. Would you take over, Mr. L? [the observer]

L: Okay.

D: Here, Juanita. Let's put cold water on it. [Dips tissue in jug of cold water.]

J: [crying quietly] It's okay.

D: That's a brave girl. It will be soon.

Ropes course (11:00-12:00 hrs.). After breakfast everyone helped clean up, including Juanita. Following a group photograph on the steps, they all ambled down the road to the "ropes course." D, a physical education teacher, encouraged the children to try things and, somewhat reluctantly, eventually tried things herself after being there for 30 minutes. Watching a boy swing on the rope, she exclaimed to Warren:

D: Isn't that something!

W: You try, D.

D: Do you think I should?

W: Of course. Climb up to the second layer. Here's the rope.

D: [Swinging across the gap to alight on the scramble net] I did it!

Her confidence allowed her to try several other items in the course. She gave a lot of encouragement and took numerous snapshots.

The *pièce de résistance* for the ropes course was the "zip-line" which one or two children attempted. Finally, just before leaving the area, she completed a zip-line attempt successfully.

They all hurried back to staff quarters where D took a shower, etc., and missed lunch.

Day 2, Afternoon

13:30 D, seated on the patio outside staff quarters in the warm sunshine, is preparing and reading. This period after lunch is officially "down time" until 14:30.

14:30 Board school bus with Debbie, K, D, and observer.

14:45 Arrive at ranch across creek. Debbie (a ROST) gives a guided walking tour of the ranch: manure spreader, sleigh and hay rack, firewood sign, circular saw, tractor and log-splitting attachment, and loader.

15:00 Group passes through corral. Debbie advises on the lack of horse riding. Pause by sow--D is apprehensive.

15:10 Groups meets Jim Burton, the wrangler. D asking questions and making plans for her four repetitive half days. (Each group of 20 would be sub-divided into four small groups of about five students.)

15:30 Andy Phillips rides in for a visit. Debbie asks questions.

15:35 Jim Burton leaves. Young Jim arrives and Debbie talks with him and Ron, the hired hand.

15:50 Debbie notices a "field mouse" (one of the boys from the "animal game" who has left the game unannounced). Debbie and D attempt to persuade him to return to the game but he refuses.

15:55 D and others hike the trail from ranch to lodge.

16:30 D in staff common room preparing for ranch study.

17:00 Supper in lodge, followed by announcements.

18:30 D returns to staff quarters. (We change clothes in preparation for hayride.)

18:45 Walk to hay rack and climb aboard. D outlines rules for hayride.

Day 2 (cont'd.)

18:50 D invites Doug to sit on the edge and talk so that she can get to know him.

18:55 D begins a song; two students attempt to join in but the song peters out amid straw throwing. [The observer suspended observations while defending himself during the ensuing hour.]

19:50 Group leaves wagon and goes to lodge. D remains with some stragglers to ensure their condition is okay. D spends some time on boardwalk chatting with some children, then goes for a shower.

20:30 Assembly in main lodge for campfire and singing. D sits on floor with children; not leading but joining in while Debbie leads.

20:50 △ sign signifying the time for small groups to join respective counsellors. Snacks distributed. No role for D.

21:15 Campfire finishes. Each group silently leaves with counsellor.

21:20 D returns to staff quarters common room.

22:00 D retires to bed; sign off.

Discussion of Day 2, Afternoon

Preparation time (13:00-21:20). D spent the entire afternoon touring the ranch and then sitting in the common room preparing for her ranch study the following day.

Hayride (18:30-19:50 hrs.). During the hayride, D joined in the fun but she spent more time defending herself than she did throwing the straw.

Campfire (20:30-21:20 hrs.). D played no role but joined in the singing.

Day 3, Wednesday Morning

07:45 Wake-up call for D who is still tired after Day 2.

08:00 Breakfast in main lodge.

08:10 D arrives late for breakfast.

09:00 Breakfast over, students leave. Teachers remain to talk to a visiting principal.

09:30 Teachers go to staff quarters. D changes clothes. She is free to engage in more preparation during the morning.

09:50 D staples question sheets to boards, discusses with Debbie where to convene ranch study group.

10:15 Staff discussion about two problem children (Pat and Gordon from the special class) causing disturbances.

10:30 Answer-sheet stapling completed, D reads material on ranch.

11:30 D talks with Coral (a counsellor) regarding medicine.

Day 3 (cont'd.)

11:50	D walks around outdoors, then goes to craft shop to check work and supplies.
12:00	D stands in road discussing craft project with K.
12:25	D talks with Denise.
12:30	Lunch in main lodge, followed by announcements.
13:10	D leaves lodge with Ronnie (not one of her students) to give him a placebo (lozenge) for a sore throat.
13:30	Down time for 15 minutes. D chats with teachers and counsellors regarding problem children.

Discussion of Day 3, Morning Events

Wake-up and breakfast (07:45-9:30 hrs.). D admitted to being tired; late for breakfast.

Preparation (09:30-12:30 hrs.). Ranch study materials and craft supplies prepared by D.

Student health (12:30-13:10 hrs.). Lunch over, D took Ronnie (although not one of her own students) to the staff quarters where she gave him a placebo (lozenge) for a sore throat.

Down time (13:10-13:45 hrs.). For D this meant talking about problem children with fellow teachers and counsellors.

Day 3, Wednesday Afternoon

13:45 D and observer go to second balcony for ranch study group.

13:50 D leaves balcony to find Brenda; reviews plans for ranch study again; then goes for shovels with Brenda; also picks up a pail for feed.

14:05 Group gathers on second balcony. D briefly introduces the topic. D establishing herself and the topic by questions and answers: what, how, why, where. Overview of route outlined. Description of four groups: farm site, buildings, pigs, horses. "Tight group" signal to bring everyone together. D reads off names in the four groups; some names missing. D arbitrarily assigns them to a group.

14:25 Leaders leave balcony bound for ranch, D bringing up rear. D "discovers" the path down the hill.

14:35 Group arrives at Jim Burton's place. D asks children not to sit on fence. Group walks to log splitter--questions and answers as to purpose. Similar visit to saw and skid filled with logs.

14:45 Group drifts to corral near horse stalls. Group 1 with counsellor, Russ, assigned to visit and feed pigs; Group 2 goes to manure spreader which is to be filled, using the shovels; Group 3 goes to horses; Group 4 goes to buildings with D.

14:50 D takes time to view and discuss horseshoes and

Day 3 (cont'd.)

saddles, then on to pig pen where they discuss the "missing" piglets. [On the reconnaissance visit, the class teacher had identified piglets as a focal point for the study. The piglets had been slaughtered because of a depressed market.]

14:55 Visit draft-horse barn--front access only. Size and function discussed. Animals fed hay.

15:00 "Tight group" signal.

15:05 Change groups--D's group discusses tack and grooming. Visit show horse en route. K suggests looking at diagram of the saddle--D had not seen it. Groups mixing. Some children from a different group join visit to draft horses.

15:25 Tack shop had been missed so is visited; then to feed store for pig feed.

15:40 Visit and feed the Belgian draft horses. Talk to Jim Burton about the possibility of witnessing a branding (not at this time).

16:00 Meanwhile, Ron saddles horse to show children, then rides to and around the ring, commenting all the while on what he is doing.

16:20 Visit tractor, then go to student common room.

16:30 Scheduled finish, but D arrives with work sheets. Discusses work sheets. Four groups organized and they work until 16:45.

Day 3 (cont'd.)

16:55 Over-time, D hastily finishing final assignment.

Discussion of Day 3, Afternoon

First Ranch Study (13:45-17:00 hrs.). This was D's first real study of the week. Occurring as it did half way through the week, she enjoyed an unusual amount of time to become used to the routines as well as to prepare for the session of which she was the leader. As the group gathered at the chosen vantage point, she asked what they could see of the general layout of the ranch below. She explained the four sub-groups and she made a particular point about the "tight group," a term which was her signal for bringing the four sub-groups together.

When the group arrived at J.B.'s place, they were cautioned not to sit on the fence. This incident represented the only time all week when she corrected the students. They visited the log-splitter and the saw, then went to the corral where she assigned study groups (speaking to Russ, a counsellor, and Mrs. X, a teacher):

> D: Russ, you take Group 1 to visit and feed the pigs. Here's a bucket for the feed that's in the shed over there.
>
> R: Okay [they left noisily].
>
> D: Group 2, you take the shovels and load the manure spreader. [Group went reluctantly to the spreader.] Coral, you take Group 3 and visit the horses in the stalls there, but

don't go behind them. [The children run toward the stalls.] Slow down! Don't scare them. Mrs. X, would you go with them, please?

X: Yes, I'll go.

D: Now, this last group. You are going with me around the building. Here are the horseshoes . . . these are some saddles. Now we'll go to see the pig pen [duplicating Russ's group].

D mentioned the reduction of the pig stock which had come as a shock during her preliminary enquiry. The original teacher had witnessed a full litter of 10 piglets and had prepared work for the children based on that number. The market had since declined and all 10 piglets had been slaughtered. That part of the study had to be replanned (the outdoor teacher has to be flexible).

The group did not actually enter the pig-feed house, but went into the horse-feed storage area between the two stalls. Teacher D appeared a little apprehensive about the draft horses, visible through small windows. The conversation (including J.B., the horse owner) was superficial:

D: What do you notice about the size of these horses?

Ss: [in chorus] They're big!

D: Yes, they are. And what do you suppose they are used for?

J.B.: [interrupting] They pull the hay wagon which you rode on last night.

D: No, we go tonight.

Ss: We went.

D: Oh yes, but I didn't go. I go tonight with another group. What do they eat, children?

Ss: [in chorus] Grass! Hay!

D: Yes. Can we give them some, Mr. B?

J.B.: Go right ahead. Put some hay on your hand--keep your fingers down. Yes, like that--[as one attempts to feed the nearest horse]. No, you have to keep your hand there long enough for him to get some. [Student had withdrawn his hand quickly at the first touch of the horse's lips.]

D: [Realizing the time and without completing even a single feeding]--Oh, my goodness! It's time we changed. Tight group. [Group straggles into the main yard by the broken manure spreader.] TIGHT GROUP! [The groups take 5 minutes to come together.]

D redistributes the groups and begins a sub-group tour with a second group. Two observations are appropriate here. D found difficulty with time distribution. The introduction, group work, and follow-up activities were planned to take two-and-one-half hours. The first small group tour took 10 minutes, but after the second small-group tour began, there were no more changes because all four small groups intermingled, and then a central focus brought them all together before heading back to the student common room for the follow-up activity at a time when the entire study should have been finished. D had difficulty with the content of her sub-group tours. She (or someone else) found something new each time she conducted a tour, and consequently, earlier groups missed something. The changes indicated the narrow scope of her preparation work.

This incremental pattern of tour content persisted throughout the four sessions during the week and could be typified by the following exchange between D, a student, and Teacher X:

D: Do you see these saddles? Each has a place.

S: What's this for? [indicates a curry comb]

D: Yes, what's this for, children?

S: Brushing the horses.

D: Well, sort of. [unsure of correct answer]

X: Do you see that diagram of the saddle with the different parts all named?

D: No, I hadn't seen that. Look at this, children.

This exchange was typical of other later discoveries, including a different horse, an anvil, a vise, entering the draft-horse stall from the rear (teacher was ultra cautious here).

A rigid tour schedule would not have allowed some serendipitous learning to take place which, on balance, may have offered as much to be gained as may have been lost through lack of rigidity. An example of a unique, teachable moment follows. It was drawn from the fourth ranch study session on Friday afternoon. The encounter took place in the main yard in front of the stalls, and included Ron (a ranch hand):

R: D'ya wanna see me cut 'is nails?

D: Oh, can we? Children, Ron will show us a neat thing.

Ron ushered the horse into the stall where, one at a time, he raised each hoof and trimmed it with a knife, throwing trimmings to the assembled children. They were excited and/or surprised to realize that hooves grew much like fingernails and required similar care.

The core ranch study group under D varied in organization and content throughout the four, half-day offerings with very little being constant throughout. Every session finished with some written activities to be completed in the student common room. Each culminating activity was cut short because of a late beginning and the need to go for supper at a set time. Thus, all four sessions were foreshortened.

Day 3, Wednesday Evening

17:00 Last children to leave; D makes quick visit to staff quarters.

17:05 D late for supper; sits with staff. Announcements.

18:00 Supper finished, D goes to craft hut.

18:30 All children in craft group sent out to look for rocks and other natural materials. D puts out paper and materials.

18:45 Children return with material and begin arranging on the paper. D is helping, suggesting, encouraging, praising, and changing water. A relaxed atmosphere pervades. Alan finishes early and is

Day 3 (cont'd.)

given some tongue-twisters. Most of the work is greeted by D with, "That's cute." Several who are finished go outside to read poems.

19:00 Some children wander in and out; many not interested in the poems and tongue-twisters. D gives much positive help to artists.

19:15 D checks some tongue-twisters with much praising.

19:25 D requests two children to clean up.

19:30 Finishing cleanup.

19:35 Tim, Jerry, and Mitzi stay to help. They linger and talk with D.

20:00 All go to campfire.

20:15 Action songs led by Brenda. D joins in well.

20:55 Skit involving a "horse" (two children) which performs by stepping over and depositing droppings on a "stooge." D is a cooperative stooge. Much laughter. Snack is served.

21:45 Quiet song led by Warren. Groups file out to the dormitories.

22:00 D retires to bed; sign off.

Discussion of Day 3, Evening Events

Crafts (18:00-20:00 hrs.). D was "at home" in the craft session. The atmosphere was relaxed and productive.

D had a stock of idiosyncratic phrases which many teachers often acquire as reflexive mechanisms. In the ranch study it had been, "that's interesting." In the craft session, "that's cute" became the stock phrase. D was supportive of the artists, some of whom responded by staying longer. Most children tried to leave after a short while. The early finishers were given tongue-twisters but some children ignored these and went outside to play or socialize.

Campfire (20:00-21:45). D played a low-key, supportive role because the residential staff took a high profile with songs and skits. True to form, D was led "willingly" to be the stooge in the children's skit. She joined in the fun and feigned surprise at the outcome in order to be a "good sport." Laughter united them all at D's good-natured expense.

Day 4, Thursday Morning

07:10 Coral arrives to discuss a problem with D (still dressed in housecoat) who meets her in the staff common room.

07:20 D washes and dresses.

08:00 Breakfast in main lodge.

09:00 Dormitory inspection by D and K, visiting each of the groups A, B, C, and D (both girls and boys); that is, eight groups in all.

09:35 Finishing the resumé of inspection, D is already

Day 4 (cont'd.)

late for ranch study.

09:40 D hurries to second balcony to meet the group; proceeds with questions about the function of the building to be seen across the creek.

09:50 Four groups read off list by D. Tasks outlined, shovels distributed, and routes there and back indicated.

09:55 Group leaves balcony, goes down hill on footpath and across the bridge by road.

10:05 Visit log splitter, then on to log shed; questions on the use of chains, the logs, and the wagon shaft.

10:10 Move to centre of corral. D experiences difficulty getting children away from horses. Four groups formed and dispersed.

10:15 D's group at tack shed--two or three students missing.

10:20 Jim Burton arrives and is greeted by D.

10:25 D takes small group to see the shorn horse in the stall.

10:30 D leads group into hay-storage area where the children feed the Belgian horses.

10:40 D calls "tight group."

10:43 D raises the question of the anvil beside the tack shed. Group examines horseshoes which are plentiful. [Only 3 students remain in group--no special

Day 4 (cont'd.)

concern to D.]

10:45 D capitalizes on Gordon's horse knowledge. (Gordon had been giving trouble.)

10:50 Gordon still talking; describes saddle parts and their use.

10:55 Group goes to pack-horse tack shop. Gordon again reveals his knowledge.

11:00 Group goes into the shorn-horse stall.

11:05 Group goes into draft-horse feeding stall. From a position of relative security in *front* of the draft horses, two boys (Costa and Gordon) go without permission into draft-horse stall. Much feeding and individuals changing groups.

11:15 "Tight group." Short stay at first tack shed then on to pack-horse tack shed.

11:20 Move into shorn-horse stall.

11:26 Draft-horse feeding station and stall visited by group. Increasingly difficult to keep sub-group together and the groups separate.

11:30 Group revisits first tack shed where Murray shows his knowledge.

11:40 "Tight group"--re-forming the four original groups.

11:43 D's group goes to pack-horse tack shed.

11:45 Visit to shorn-horse stall.

11:50 D's group feeds Belgian horses.

Day 4 (cont'd.)

11:55 Murray talks to group at first tack shed.

12:00 Ron shows group a horse with and without a shoe. D observes.

12:05 Group disperses by various routes to student common room.

12:12 Group arrives at common room; assignments given.

12:16 D moves around, helping and asking questions.

12:25 Group readying to quit. D reviews assignment; asks them to write a poem in their own time. (Generally no agreement to write such a poem.)

12:30 Lunch in lodge.

13:30 Lunch over, "down time" begins. D goes to staff quarters and to private room.

Discussion of Day 4
2nd Ranch Study

Student health (07:10-7:20). D was awakened early (by a counsellor) with a medication call.

Breakfasttime (08:00-09:00 hrs.). D was on time.

Dorm inspection (09:00-09:40 hrs.). With a large staff, various teachers took turns to fulfill duties. Day 4 was the first time for D to make inspection. The routine was neither serious nor frivolous, and, as D and a fellow teacher made the rounds, they commented both positively and negatively as to the tidiness and cleanliness of the dorms. Again, D's problem with timing was evident in that she was 10 minutes late for her morning study.

Second ranch study (09:50-12:25 hrs.). D showed she was now familiar with the routine of outlining the tasks and organizing the groups but, as indicated earlier, each of the four sessions held surprise elements that were beyond the teacher's control. In this session, children did not stay with their four sub-groups but, after the initial assignment, tended to go where they wished. The second sub-group arrived with only three out of five students, which did not apparently perturb D. To her credit, she allowed one boy (Gordon, who had been a pest) to attain prominence by telling what he knew about saddles, horses, and packing. It was a classic example of a trouble-maker being given responsibility so as to turn him around, at least for the time being. The group was again late returning to the student common room for the written assignment prior to lunch.

Down time (13:30-14:00 hrs.). D retired to her room in the staff quarters in one of her rare, private moments exclusive of sleep.

Day 4, Thursday Afternoon

14:00 Second balcony for orientation. D asks for the

Day 4 (cont'd.)

identification of buildings and uses (usual rejoinder from D: "That's interesting.")

14:15 Group names read out by D. One name missed--Pat. (Unfortunate oversight, as he had been giving trouble by attempting to run away.)

14:20 Leave balcony, use road bridge to gather at log splitter where the functions of cutting, splitting, and conveying are discussed.

14:30 Group moves to shed where some children take a photo. Role of shed discussed.

14:35 Group moves into yard.

14:40 Small group at first tack shed.

14:45 D leads small group to pack-saddle room where she leads discussion on function of tack. On leaving, the group notices insulation in the shed wall.

15:00 Move into shorn-horse stall.

15:05 Draft-horse feeding station where Jim Burton talks with small group.

15:08 Group returns to saddle-horse tack room. (All other groups disintegrating without tasks to keep busy.) Jim Burton entertains a few with horseshoe tossing.

15:15 "Tight group."

15:20 While group looks at saddles, etc., D sits to rewrite outline which is becoming difficult to read

Day 4 (cont'd.)

(the group escapes).

15:25 D herds the group (only four present) into the shorn-horse stall.

15:26 They move to draft horses. (Note a number of children from other groups sitting on fence rails.) They feed the Belgians and talk about horse fears.

15:35 Move to pack-horse tack shed.

15:38 D leads group to first tack shed (saddle horses).

15:45 "Tight group."

15:48 Regroup; D's small group discusses anvil and horseshoes.

15:50 Group goes to pack-horse tack room; discusses the gear.

15:55 Move to shorn-horse stall, then to rear of draft-horse stall; then to front to feed horses.

16:00 "Tight group."

16:03 New group examining anvil, shoes, and saddles. (Pat left the area, heading for the lodge.)

16:07 Pack-horse tack room for discussion and showing.

16:10 Children from another small group chase pig, which enters shorn-horse stall. Gord (a counsellor) shoos him out.

16:11 D's group visits shorn horse; children guess, incorrectly, why he was shorn.

16:14 D leads them to rear of draft horse; a quick word,

Day 4 (cont'd.)

especially about size and task.

16:15 Group enters hay-storage area where they feed the Belgian horses.

16:20 "Tight group" (a little loose).

16:30 Group uses various routes to reach the common room in student quarters. Early arrivals put to work on sheets.

16:40 Most children are in and getting to work.

16:53 Stop answer sheets without completing them.

17:00 Lodge for supper.

18:15 D leaves table to go to staff quarters to wash and change.

Discussion of Day 4
3rd Ranch Study

Ranch study (14:00-16:30 hrs.). D's routines were evident, as well as her stock rejoinder, "That's interesting." Small-group tours were given during which time more incremental learning took place while some items were ignored (e.g., the insulation was noticed in the walls and was added, while the pig feed shed was not visited). The groups finally disintegrated, in this session, for a variety of reasons. The counsellors did not insist on the subgroups staying together and, for some groups, there was less to see and almost nothing to do. If one were to pinpoint a main cause of group breakdown, it would have been the actual lack of something *to do*. Timing problems occurred again, with children arriving to work on written assignments 10 minutes before dismissal time. The situation is a perennial one for outdoor schools in the effort to balance too much free time with none at all.

Day 4, Evening

18:25 D goes to craft shop with helpers (all girls from the "Pinecone Pretties"). Other children drop in. D welcomes them with encouragement and personal contact, especially Charlene who has been ill.

18:35 A fist fight starts between Bryan and Barry outside the craft hut. D breaks it up and brings Barry indoors. She then sends Barry to fetch Bryan (both are supposed to be attending the craft session).

18:45 D gives directions for constructing craft project. Barry returns; says Bryan did not wish to come. D shows art examples, then disperses the group to look for material.

18:50 Galvin comes in to show D his art work while she puts out glue.

18:55 All children return with material. D requests that Sean fetch Bryan.

19:03 Sean and Bryan arrive. D takes Bryan to show him the examples and then sends him out for material.

Day 4 (cont'd.)

D tells Barry that she plans to have Bryan sit next to Barry on his return.

19:08 Many children calling for help. D says, "Shhh!" and insists on raised hands. Bryan returns and D guides him in getting started.

19:10 First child is finished.

19:35 Begin packing up material. Many children drop in to see the work.

19:45 Craft hut is cleaned. D returns to staff quarters to freshen up.

20:00 Lodge for campfire.

20:15 D returns to staff quarters for camera flash attachment. On the way, she is called by a counsellor to help a child who is hyperventilating. Several adults try various approaches with Joey, who finally calms down.

21:15 D leads Joey into the campfire program where he sits, pale and quiet. Snacks are dispensed.

22:00 D waits to go round the dormitories. She has good words to say to all.

22:25 Last child visited and D goes to staff quarters; retires immediately. Sign off.

Discussion of Day 4
Crafts and Campfire

Crafts (18:20-19:45 hrs.). Early in the evening, D had to contend with two boys fighting each other. She was calm throughout the altercation and managed to get the two boys to work silently, side by side.

Campfire (20:20-22:00). Early in the campfire session, D encountered her second crisis in as many hours, this time involving a boy who had hyperventilated. D was the first teacher on the scene. She alerted the resident teachers who tried various techniques, eventually calming the boy. D led him to the remainder of the campfire.

Night rounds (22:00-22:30). D and a fellow teacher made the rounds with a kind word to all children.

Day 5, Friday Morning

08:05	D rises late.
08:30	D arrives for breakfast.
09:00	D returns to staff quarters for a list to make inspection.
09:05	D and K visit the Buckaroos, Erosians, Rodents, Bog Hogs, Pinecone Pretties, etc. D finds few faults.
09:35	D and K return to staff quarters where D blow-dries her hair (still damp from morning shower).
09:50	D goes to craft shop, joining the group which is being prepared for the Animal Game by Brenda (who is explicit).
10:10	Group leaves hut, walks down road across car bridge,

Day 5 (cont'd.)

across field to edge of boundary, where Brenda reviews rules and roles, including boundaries.

10:25 D is with some boys when the starting gun signals the beginning of the game. D is "disease."

10:30 D chases Barry--gives up.

10:31 Catches Deanna.

10:32 Chases Tim--gives up.

10:35 Chases Russ (a counsellor)--gives up.

10:37 Larry is outside boundary. D drags him into the area and takes a tag.

10:45 Takes a tag from Joey (mistakenly).

10:50 Chases Kelly and catches her.

10:52 Catches Toni.

10:53 Is stalking Russ.

11:00 D realizes her mistake and returns tag to Joey. D runs and walks 1:4.

11:01 Chases Russ--gives up.

11:02 Chases Biro--catches her.

11:05 Catches two together.

11:07 Chases another two and gives up.

11:12 Rests on log.

11:15 Lisa reports that Joey has fallen--leads D back to Joey. He is okay.

11:17 Russ taunts D. She hesitates, refusing to run.

11:20 D corners Ron who is caught by Joey.

Day 5 (cont'd.)

11:22 Final minutes of game because "Man is out."

11:25 D goes with several children to the "line shack" for the finish of the game.

11:30 Children take photographs.

11:35 D sits with Tobie, Kelly, Lisa, etc.

11:40 Group begins to look for Bryan and Barry.

11:48 D and observer return to start, pick up coats, and return to crafts shop.

12:05 Arrive at crafts shop; boys whittling on sidewalk. D sits beside them.

12:10 Total group enters crafts shop for debriefing on the Animal Game with Brenda.

12:20 Debriefing over.

12:23 D pauses to talk to Murray about his ranch visit; continues to staff quarters, freshens up.

12:30 Lunch in lodge.

13:10 D finishes lunch, returns to staff common room for preparation and down time. Prepares boards for ranch study.

Discussion of Day 5 Morning Events

Preparation time (08:05-10:00). D arose late on the last day. The pace was having an adverse effect on her energy level. She showered and was one-half hour late for breakfast. She did manage to complete the dormitory inspection and dry her hair before the Predator-Prey game at which she was assisting. The group met at 10:00 hrs., thus giving her 30 extra minutes to complete the foregoing tasks.

Predator-Prey game (10:10-12:00 hrs.). D played a prominent role in the game. Sometimes, while chasing fleet-footed children, she quit; but she managed to corner some children into giving up a "life." By joining in the game, D showed again what a "good sport" she was.

Socializing (12:05-12:30 hrs.). D arrived at the crafts shop with sufficient time to do nothing in particular but socialize and wait for lunch, the first such opportunity which she had since her arrival four days earlier.

Day 5, Friday Afternoon

14:00 D goes to second balcony for ranch study introduction. She questions the children about living on a farm and about Jim Burton's livelihood. The children can guess that he rents horses and gives hay rides. D reorganizes the assignments into *three* (rather than four) groups and explains the term "tight group."

14:15 Group arrives at log splitter--brief explanation.

14:20 Move to log shed.

14:23 Group moves to yard where they divide into three.

Day 5 (cont'd.)

The horses are, for the most part, released into the south corral.

14:25 D's small group moves to saddle-horse tack shed where they discuss bridle, saddle, chaps, anvil, and horseshoes.

14:35 Walk past insulation in wall enroute to pack saddle and pack boxes. Questions by D about the items.

14:40 Group enters shorn-horse stall which stands empty. D tells story of absent horse.

14:42 Group moves into draft-horse stall. Only one horse remains. The children feed it.

14:50 "Tight group." The children who are far away in the pasture take 5 minutes to assemble.

14:55 Total group observes Ron trim the hooves of a pinto.

15:05 Total group re-forms into three small groups.

15:08 D's group at tack shed; discuss saddle, bridle, chaps.

15:13 Move to anvil and shoes; discussion on Jim Burton's sources of income.

15:26 Walk to shed where insulation shows in wall. They examine pack-horse saddles.

15:33 Group with D moves into draft-horse stall. Find out from Ron that its name is "Chief."

15:34 Six minutes taken to regroup.

15:40 Tack shed to discuss Brand JL, bridles, saddles,

Day 5 (cont'd.)

chaps, horseshoes.

15:50 Group visits forge area for first time.

15:55 Pack-horse tack shed to discusss saddles, boxes.

16:06 Visit "Chief" (draft horse).

16:08 D calls group to common room.

16:15 Group arrives. D distributes report boards. Some boys are late arriving.

16:22 Much traffic through student common room which interrupts work. All other groups are finished.

16:28 Sheets are collected. D's husband arrives.

16:30 D and other teachers go to staff quarters where they load the school bus with supplies.

17:00 Supper in lodge.

Discussion of Day 5
4th Ranch Study

Ranch study (14:00-16:30 hrs.). On this occasion, D organized the large group into three (rather than four) sub-groups. Further incremental content was evident during the ensuing period. Again, her efforts to organize were thwarted. One group had been assigned to visit the horses, all of which had been released into the south pasture.

For the final time the group returned to the student common room where, for one brief period of 15 minutes, the students made half-hearted attempts to complete the assignment.

Loading the school bus (16:30-17:00 hrs.) The beginning of the end of outdoor school.

Day 5, Friday Evening

18:00 Supper over, D and K fetch finished crafts for display in lodge in anticipation of "parents' night." Meanwhile, all the children are taken to a spot east of the lodge for dessert. This is a deliberate ploy to remove the children before the parents arrive.

18:15 D, accompanied by husband, goes to parking area near gate to direct incoming cars.

19:00 D returns to lodge.

19:05 Campfire in lodge, led by Brenda and Warren.

20:00 Parents disperse homeward with their children.

20:15 D and husband take bags, pack car, say farewell, and leave.

Discussion of Day 5 Windup

After supper, D had little to do with the children as she prepared the craft display and guided parents in for the campfire.

Summary Statement

D was a placid, hard-working, and (at times) tardy teacher who showed genuine interest in the children and the outdoor school experience.

Teacher D: Behaviour Settings

The significance of the behaviour settings which follow may be appreciated by considering some of the claims made in the realm of "eco-psychology." The "behaviour setting" concept has been used as a unit of study for thirty years, having emanated from a group of researchers at the University of Kansas. Wright, Barker, Nall, and Schoggen (1951-1952) referred to characteristics of "behaviour settings" which could be described in the following four ways:

1. "A set of environmental raw materials for behaviour" (p. 189). The suggestion was that the environment sets an expectation for behaviour which changes the actors in it.

2. They perceived that within particular environments there was ". . . a set of possibilities for action that are seen by the generality of persons living in the community" (p. 189).

3. The behaviour setting was said to be "coercive" (p. 190) upon individuals and groups.

4. "Individuals and groups bring to the setting their own goals, abilities, and experiences which, together with the environment, form 'psychological habitats'" (p. 190).

Gump (1974:269) referred to the relationship between the individual and the environment as being "synomorphic"; thus:

> The concept of synomorphy helps describe the relation of the individual to physical aspects of habitat, to grounds, enclosures and facilities. The individual is embedded in milieu-and-behaviour environment. The pupil experiences not just playground but playgrounding.

Bronfenbrenner (1976:5) envisaged educational environments as a "nested arrangement of structures, each contained within the next." The present study encompassed the first or micro-level. The recording and interpreting of the synomorphic relationship was performed by the researcher acting as a "transducer" (Barker, 1965:2). There was no attempt on the part of the researcher to influence the behaviour of the actors.

Blocksidge (1978:35) concluded that:

> . . . each setting acts differently to coerce like behaviour from its inhabitants and any given inhabitants moving from one setting to another will modify his/her behaviour, to some degree, to adjust to the setting's contextual effects.

In the following section, Teacher D's behaviour settings are listed. The lists illustrate the variety of coercive settings as well as the sheer number of novel settings to which the teacher and students had to adjust. Behaviour settings for the week once recorded are not listed again.

The "behaviour settings" (BS) were many and varied. In the tabulated summaries which follow, the settings are categorized with implication for effect (Figure 16), and

Ranch

- log splitter
- sled with logs
- saddle-horse stalls
- yard
- shorn-horse stall
- Lodge, 2nd balcony
- south coral
- saddle-horse tack shed
- anvil
- Belgian-horse stalls
- hay storage
- pig-feed room
- practice riding ring
- pack-horse tack shed
- insulated wall
- work bench

Forested Quiet Spot

- logs

Animal Game Site

- treed rectangle

Overnight Site

- loghouse: entrance/living area
  - cooking/eating area
  - sleeping area
  - porch area
- beside loghouse

Arts Areas

- fireplace/campfire, Lodge dining hall
- craftsroom

Recreation Venues

- hayride
- ropes course

School

- hallway
- P.E. office
- general office
- staff room
- library
- Grade 2 classroom
- gymnasium
- Kindergarten classroom
- in front of school

Transportation

- rented bus
- school bus
- haywagon
- Gibson's car

Travel Stops

- Mac's Milk Store
- Coop Gas Station
- Water Valley Gas Station and grocery store

Eating Centres

- Dogpound Creek picnic site
- Lodge dining room
- loghouse eating/cooking area

Roads and Trails

- boardwalk
- lower trail to loghouse
- road from loghouse to Lodge
- road from J.B. ranch to staff quarters
- hillside trail to car bridge
- trail from craftsroom to Animal Game site
- trail from Animal Game site to line shack

Gathering Areas/ Parking Lots/Balcony

- roads beside:
  - J.B. ranch
  - Lodge
  - craftsroom
  - staff quarters
  - student quarters
- lots beside:
  - staff quarters
  - in field opposite J.B. ranch
- balcony, lodge

Main Living Areas

- Common rooms:
  - students' area
  - staffs' area
- Bedrooms:
  - staff quarters
  - D's room/K's room
  - student quarters
    - girls:
      - Group A
      - Group B
      - Group C
      - Group D
    - boys:
      - Group A
      - Group B
      - Group C
      - Group D

Entrances/Corridors

- Lodge entrance hall
- student quarters:
  - girls/boys entrances
  - girls/boys corridors
- patio: staff quarters

Miscellaneous

- line shack
- tool room

Figure 16

Teacher D: Categorization of Behaviour Settings the new behaviour-setting tallies for the week are shown in Figure 17.

The tally for Teacher D includes only those settings in which she was present. The core studies program, in which D was responsible for the ranch study, included other significant BS for the children in studies of the environment. Some of the environmental BS were not visited by D (nor by the observer) but the children encountered them with other leaders; the list included Environmental Awareness, Boreal Forest and man's impact, Energy Circuit, and Sawmill.

Distribution of D's Time at O.S.

A summary of the time Teacher D spent at outdoor school is presented in Table 37. The categories for time were established from the following guidelines:

1. Time was considered to begin when D left her sleeping quarters at the beginning of the day and ceased when she entered her own quarters at night. Exceptions to the above were the O.S. beginning and ending times which were arbitrarily chosen as 08:30 hrs. Monday morning and 20:15 hrs. Friday evening.

2. Time spent alone excluded anyone else during the waking hours.

3. Time spent with the observer excluded anyone else during the waking hours.

Day 1, Monday (33)*

school hallway
P.E. office
general office
staff room
library
Grade 2 classroom
gymnasium
kindergarten
school front area
rented bus
school bus
Mac's Milk Store
Coop Gas Station
Dogpound Creek picnic site
Water Valley Gas Stn. /grocery store
road in front of J.B. ranch
road beside Silver Creek Lodge
boardwalk
Silver Creek Lodge entrance hall
Silver Creek Lodge dining hall
staff quarters common room
staff quarters D and K's rooms
student quarters girls' entrance
student quarters girls' corridor
student quarters common room
fire drill
craftsroom
road beside staff quarters
lower trail to log house
forested quiet spot
log house entrance and living area
log house kitchen/eating area
log house sleeping area
log house fireplace area

Day 2, Tuesday (17)

log house porch
beside log house
road from log house to lodge
ropes course
staff quarters balcony
parking lot beside staff quarters
parking area in field opposite J.B. ranch
log splitter in south pasture
log-sled in south pasture
saddle-horse stalls
yard
shorn-horse stall
J.B. ranch parking area
road from J.B. ranch to staff quarters
hay wagon
campfire (lodge dining hall)

Day 3, Wednesday (12)

road beside student quarters
road beside craftsroom
Lodge, second balcony
tool storage room
hillside trail to car bridge
south corral
saddle-horse tack shed
anvil
Belgian horse stalls
hay storage area
pig-feed room
practice riding ring

Day 4, Thursday (14)

student quarters, girls' bedrooms:
  Group A
  Group B
  Group C
  Group D
student quarters, girls' washroom
student quarters, boys' bedrooms:
  Group A
  Group B
  Group C
  Group D
student quarters, boys' washroom
student quarters, boys' entrance
student quarters, boys' corridor
pack-horse tack shed
insulated wall

Day 5, Friday (6)

road/trail to Animal Game site
Animal Game area
trail to line shack
work bench
saddle-horse stall (Apache)
Gibson's car

Figure 17

Teacher D: Behaviour Settings at New Sites Encountered During Five-Day Outdoor School

Total new sites: 82

*Average new sites = 16.4 /day

Table 37

TEACHER D: DAILY PERCENTAGE DISTRIBUTION OF TIME SPENT AT OUTDOOR SCHOOL

	Alone		With Observer		With Teachers		With Counsellors		With Students*				
									In Charge		Not in Charge		
Day	No. Mins.	% Daily	No. Mins.	% Daily	No. Mins.	% Daily	No. Mins.	% Daily	No. Mins.	% Daily	No. Mins.	% Daily	Total Hours
Mon.	55	6.4	210	24.3	249	29.0	00	0.0	133	15.4	215	24.9	14.4
Tue.	168	20.0	30	3.6	290	34.5	00	0.0	223	26.5	130	15.5	14.0
Wed.	50	5.9	10	1.2	360	42.4	20	2.4	285	33.5	125	14.7	14.3
Thur.	100	11.0	00	0.0	195	21.5	10	1.1	557	61.4	45	5.0	15.3
Fri.	50	6.9	17	2.3	272	37.3	00	0.0	173	23.7	218	29.9	12.2
Total	423		267		1366		30		939		1165		70.2
% of Week		10.1		6.3		32.5		0.7		22.3		27.7	

*Total time with students: 2104 mins. = 50%

4. Time spent with teachers included regular school teachers as well as the resident outdoor school teachers. When D was with the teachers as well as the children but was not responsible for the latter her time was credited with the teachers.

5. Time with counsellors (high school students) was with one or more exclusively.

6. Time with children was sub-divided into two sub-categories. When D was "in charge" it included time when she was exercising primary leadership with the children. When another teacher was "in charge" but D was playing a supportive role, her time was categorized as "not in charge."

The following discussion is drawn from Table 37 data. Total time at O.S. was in excess of 70 hours, which is almost three times as great as a regular school week (approximately 25 hours). About half the time D was at O.S. she spent with the children in a leadership or supportive role, which accounted for about 35 hours--in itself longer than a regular school week. The times during which D was exercising primary leadership amounted to 22.3 hours, which was less than, but close to, time spent in a regular school week. Without the residential O.S. personnel one could expect the teachers' prime responsibility for the children to rise to at least 35 hours.

Each day was approximately the same length with the exception of Friday (Day 5, the last day). The longest day was Thursday (Day 4), by which time D would have been more accustomed to the demands of the situation. On Day 4 she undertook a larger proportion of contact with the children, amounting to 61.4% of the entire day. The lowest daily percentage of contact as a primary leader with the children occurred on Monday (Day 1) during which time she was responsible for driving a school bus (with no student passengers) to the O.S. site. This latter function may appear to be unusual but it illustrated the divergent tasks facing a teacher going to outdoor school. The bus-driving duty did remove the teacher from proximity with the children enroute to O.S.

One might observe that the amount of contact with the children increased as the days progressed toward Day 4 (Thursday), the high point, and tailed off on Day 5 (Friday). Whether or not the proportions were by design is not clear, but the fact that D was substituting for the regular classroom teacher without the benefit of preliminary work, it would appear to have served as a "breaking-in" period. D did indeed spend the "free time" on Days 1 and 2 preparing for the ranch study and craft session.

Teacher D's contacts with the counsellors were minimal but cordial, and especially conscientious relative to the dispensing of students' medications. D spent approximately one third of her time in the company of visiting regular school teachers as well as the residential outdoor staff, from whom she took many cues. It was observed that she spent increasing amounts of time with teachers from Monday to Wednesday with a sharp drop-off on Thursday, at which time she undertook a lion's share of student leadership. The time spent exclusively with the observer declined after the first day, which was marked by the bus journey shared by D and the observer.

Time spent alone was minimal, exclusive of sleep time. Time alone amounted to a daily mean average of 1 hour 24.6 minutes. The highest percentage of such time was on Tuesday following the log-cabin experience, an overnight excursion during which time bathroom facilities were primitive and D shared sleeping accommodation with the female students. Her private time was extended by missing lunch and taking a prolonged ablution period.

Summary Statement

Of the total 70 hours that Teacher D spent at outdoor school, approximately 50% (35 hours) was spent with the children in either a leading or supporting role. Less than 1% of her time was devoted exclusively to the high school counsellors, approximately one third was spent with other teachers (often in the proximity of the children), and approximately 6% was devoted to the observer. Exclusive of sleep, time spent alone amounted to 10% of her week or about 1½ hours each day.

Summary and Implications
Teachers A, B, and C

The following are not intended to be generalizations of a universal nature but, where commonalities occur, implications are drawn which may serve to generate hypotheses for future studies. It was never intended that comparisons be drawn between teachers, therefore, data for individual teachers are considered in that light.

Presage Segment

In spite of the fond hopes expressed by the founders of outdoor education, school and university preparation for O.S. were conspicuously absent from the backgrounds of all three teachers. The community-based agencies, including the schools at which they taught, were more influential in readying the three for their roles in outdoor education. The extent of formal/informal outdoor education preparation of teachers would be a suitable topic for future investigation. One might postulate that the informal agencies are more effective in producing outdoor educators.

There were discrepancies between the OEOT responses and implementation of programs by Teachers A and B, whereas C more nearly fulfilled her intentions. Such discrepancies would be worth investigating with a larger sample because teachers should try to fulfill their promises.

Teacher-Process Segment

The only variable which was rated consistently high during outdoor school for the teachers was warmth. Further studies are needed to verify the finding because warmth has been found to be an important variable in teaching to which outdoor education may be able to make a valuable contribution. Another high-inference variable, smoothness, was rated lowest for all three teachers. The outdoor setting did not allow the lesson pace to be maintained and the fragmentation of the learning may have to be accepted in exchange for unplanned learning in a discovery-learning mode or the opportunity to improve teacher warmth.

Increased opportunities for empathy were not clearly evident, which may have reflected the sporadic data-collection methods employed in the present study. Another, equally feasible, theory to account for the apparent low ratings for empathy may have reflected the way in which the outdoor schools were organized, where the core sessions were taught to larger groups by the classroom teacher, whereas the informal times were supervised by counsellors. If empathy is a worthy quality in dealing with children, teachers may have to be allowed more unstructured time with them, thus permitting a 1:1 situation, or the counsellors may need some preparation to assume the role.

Talk proportions recorded by FIAC indicated that no conscious effort to adjust the balance was made by the teachers. If it is more desirable for children to verbalize at outdoor school, teachers may have to be coached in the approach. Category 1 results, accepting feelings, were low for teachers in a way similar to the rating for empathy to which the same comments apply relative to research design and the organization of the teachers and counsellors. Category 2, praise, was not noticeably different between the settings and may not, therefore, be used to justify having outdoor school. If praise is the antithesis of criticism, then outdoor school data from the present study revealed a consistent reduction in criticism and should be examined more closely at times other than those monitored.

Category 3, accepting ideas, and Category 4, questions, were low in the recorded sessions, which may indicate less discovery-learning teaching as one possible explanation. It may also be postulated that fewer questions and reduced expression of ideas may have been the result of silent-learning present in the varied and novel environment of outdoor school, a premise which is not well documented.

The high incidence of lecturing revealed at outdoor school would not support the model of preferred teacher behaviour but may point up the fact that children in a strange environment may need more information. The preferred outdoor education teacher behaviour would indicate that the teachers should know when *not* to speak in order to allow the "experience" to be the "teacher." Future studies should consider comparing lecturing/non-lecturing styles. Similar comments may be appropriate for the data on "directions." These data may indicate that teachers may need to give directions when children are in a large, unknown, unbounded, and sometimes mobile setting. Safety was and is a key concern in such situations and has been used as rationale for justifying a more "direct" or teacher-centred style.

The behaviour during outdoor school is interesting in itself but the carryover effects of outdoor school are also very interesting. Data from the HITB and FIAC instruments indicated that there were changes in a particular direction during the session coded after outdoor school. These data should offer a focus for further study into cause and effect.

Teacher A felt more comfortable than did Teacher B in the outdoors. B provided her O.S. sessions in an indoor setting notwithstanding the concessions to outdoor-related content and method alluded to earlier. She attempted to relate her topics to the theme "Man's Adaptation and Use of His Environment." Her sessions on pioneer cooking and woolcraft militated against her indoor sessions.

Teacher B's experience may serve to illustrate that not all teachers are destined to be outdoor teachers nor should they be made to be so. It may be said that, with the team approach, the children had opportunities for education in the out-of-doors with other staff members, whereas B contributed by educating through related content and method.

Of the three, Teacher C felt most comfortable in the outdoor setting. Paradoxically, C spoke more frequently in most categories while outdoors. The exception alluded to earlier included accepting student ideas, questioning, and criticizing. The year spent as a permanent outdoor school teacher prepared her well for the types of activities she was performing during the observation sessions. C had had some misgivings about being a full-time O.S. residential teacher and had resigned her post shortly before this study was undertaken. She was able to enrich her sessions in the outdoors whereas she appeared ill-at-ease in the all-too-unfamiliar classroom.

Differences in the data gleaned from the two observational instruments would illustrate the need for coding at identical periods as well as the need to match low- and high-inference variables. Wood and Cheffer's (1978) adaptation of FIAC could add the dimension of non-verbal communication. With the exception of the reduced frequency of teacher talk by C, the data from FIAC and HITB did not support the discovery-learning model. It may be postulated that the teachers were not familiar with the particular demands of a discovery-learning approach or it may be that outdoor school does not lend itself to discovery-learning.

The three teachers were ranked on the MTAI at about 50th percentile. The teachers appeared to perform above this arbitrary ranking on the democratic-autocratic scale; thus, a different instrument should be tried in future studies.

Context Segment

Teachers B and C expected all children to benefit from the outdoor experience, and A expressed reservations about one part of his group--the Grade 4 students. Traditional outdoor schools have been reserved for Grade 6 students. The mean average age of all the children in the present study was between 9.5 to 10.0 years, while A's overnight camp was spent with fewer, older boys. B's classes had a cross-section in all settings. In the case of C she maintained her Grade 5 class throughout. Apart from A's observation, the age of the students had little impact on the observations. The students of A, B, and C were all in the middle and above range of academic achievement. They were neither gifted nor were they low achievers. Studies at outdoor school should include both low and high achievers.

In the classroom context the students knew their schoolrooms well but, in contrast, the outdoor setting was novel although not always outdoors. For B, all O.S. observations were indoors; C's were both in and outdoors. To paraphrase Sharp (1952), those things which are better taught indoors should there be taught. It might also be said that those things that can be taught elsewhere should not be taught at outdoor school. It was questionable whether or not B's woolcraft and pioneer cooking had to be accomplished at outdoor school. It might also be said that the overnight camp-out from the lodge by A and B were inappropriate during a residential setting, although it did give A and B opportunities for informal interaction with the students that would otherwise have been missed in the lodge setting.

Student-Process Segment

None of the teachers allowed their students the verbal latitude expected in outdoor education, particularly in the area of initiation. Teacher B, who allowed most initiating, did so, paradoxically, indoors. Student initiation in the outdoors did not necessarily follow automatically with the setting, which raises questions relative to both student and teacher in the setting.

Product Segment

All changes were marginal in recorded scores for

C.A.Q. Such a small number of teachers did not warrant more sophisticated treatment of the data in order to make inferences. The decline in the scores raises the question of whether or not the second response level resulted from "post-outdoor school let-down." Put another way: Were the students at outdoor school in a state of euphoria, only to return to the mundane world of regular school where they recorded their impressions accordingly? The implication may be drawn from these data that the instrument should be applied after a greater time lapse in an effort to monitor residual changes.

In conclusion, Teachers A, B, and C had strengths and weaknesses but the children seemed to benefit from their 3-to-5 day experience away from regular school, a benefit enhanced by the teachers' personalities and their effect on the classes. It appeared that, in order to prepare for outdoor education (as revealed by the teachers in this study), the informal agents were more significant. Verbal interaction studies indicated that patterns vary little between the indoors and outdoors although the teachers were less smooth at outdoor school where they were "warmer" and less critical. The context of outdoor school revealed some interesting facets not fully understood at this stage, but there was confirmation for Sharp's (1943) indoor/outdoor rationale. Product data were inconclusive.

Summary and Implications
Teacher D

The descriptive record of a week at outdoor school distinguished the data for Teacher D. The catalogue of new behaviour settings documented the sheer number of novel situations to which the classroom teacher has to become accustomed and put to educational purpose. The most consistent feature of the outdoor setting was *change* which may be employed as an educational tool. Teacher D was not always capable of adapting to the varying demands placed on her at outdoor school but her constancy and diligent approach to the tasks balanced the account in her favour as an adequate teacher in the outdoors. As a means of documenting life at outdoor school, the descriptive record lacked the conciseness of data provided for Teachers A, B, and C, but the total picture allowed a more complete story to be told. The role was seen to be full time, very demanding in physical effort, and psychologically stressful. If elementary teachers are ideally to be supportive, warm, and sunny in disposition, then Teacher D was a good example of such a person. The outdoor school staff and program organization provided a full 70 hours of job-related activities over the 5-day period. Of that time, one half was spent with the students but mainly in highly structured activities. There were indications that unstructured time may provide constructive opportunities for the teacher to be with the children but much of their "free" time was spent with counsellors. This equation and implication needs to be re-examined. Time spent alone may also be an important factor, and D had about 1.5 hours per day which may not be sufficient for recuperation.

The following list is comprised of qualities which, in the opinion of the observer, enhanced Teacher D's performance as an outdoor teacher:

Eager to listen and learn
Diligent in preparation
Showed initiative in demanding situations
Prepared for contingencies
Supportive
Cooperative
Warm
Conscientious
Relaxed in less-structured settings

The following is a list of qualities which, in the opinion of the observer, may have detracted from Teacher D's performance as an outdoor teacher. Any so-called "deficiencies" are hypothetical until investigated further:

Limited in perception (particularly sight)
Inflexible to changing needs
Unadaptable with preconceived plans
Self-conscious
Uncomfortable in structured settings

Unimaginative in totally natural crafts work

Tardy (particularly in pacing activities)

Inclined toward saccharine sweetness

Uncomfortable with farm animals

Her core study lacked "hands on" activity

In conclusion, the study of Teacher D revealed a detailed week full of demands calling for physical, mental, and emotional effort. On balance, her performance at outdoor school was not only more positive than negative, it was entirely natural and even typical of a classroom teacher at the upper elementary school level.

Summary of Chapter 4

Chapter 4 has presented a description of four teachers, set out in two parts. Part 1 included three teachers who were described using similar protocols. Part 2 presented the description of a fourth teacher.

Part 1 included two teachers, each of whom was responsible for classrooms of "family groupings" containing children in Grades 4, 5, and 6. The third teacher taught Grade 5. The three teachers were described using the model for studying teaching (Dunkin & Biddle, 1974). Within the presage-process category, teacher formative and training data were collected using the Lumby Outdoor School Study form (Lumby, 1979), and the Outdoor Education Opinionnaire for Teachers (Brekke, 1977). Teacher properties data were recorded from the Minnesota Teacher Attitude Inventory (Cook, 1951). Teacher classroom behaviour data were gathered through the use of the low-inference Flanders Interaction Analysis Category system (Flanders et al., 1974) and through the use of the High Inference Teacher Behaviour Rating Scale (Eggert, 1977).

Within the context-process category, student characteristics data relative to academic achievement, sex, and age were collected from school records (Canadian Cognitive Abilities Test, Wright, 1974; Canadian Test of Basic Skills, King, 1976). Student behaviour data were recorded by means of the Environment Inventory (Lumby, 1979). Data relative to one teacher and her students in context were gathered through the use of the descriptive records adapted from Johnson and Gardner (1979) and presented as a "log of prominent scenes" and two parallel days: "a day in the life of a classroom teacher at school" and "a day in the life of a classroom teacher at outdoor school."

Within the process-product category, student opinions data were noted from the Classroom Atmosphere Questionnaire (Hoffmeister, 1971).

Part 2 presented data from one teacher who taught Grades 5 and 6. The teacher in the context of outdoor school was described as "a week in the life of a classroom teacher at outdoor school."

Chapter 5 presents conclusions, methodological critique, and recommendations resulting from consideration of the data drawn from four teachers.

Chapter 5

CONCLUSIONS, METHODOLOGICAL CRITIQUE, AND RECOMMENDATIONS

Introduction

Descriptive studies of a small number of teachers and their students do not lend themselves to generalizable conclusions. There were, nevertheless, unique opportunities to study the micro-worlds of the teachers and students concerned in the present research.

Some general observations are made in this chapter and specific conclusions are stated in the form of hypotheses. A critique of the research instrumentation, the data collection, and the analyses is offered. The chapter concludes with recommendations for further research and teacher education.

General Observations

The following observations are drawn from the methods and substantive data of the study.

Research Design

The model for studying teaching (Dunkin & Biddle, 1974) (see Figure 1, page 8) was found to be a useful tool for the purpose of analysing outdoor teacher behaviour. Dunkin and Biddle proposed several foci for the purpose of integrating the model with available research data. Three of the foci--climate and directiveness, management and control, and the classroom as a social system--were adopted as synthesizing agents in the present study.

Collection and Interpretation of Data

The collection and interpretation of data from diverse sources and, on occasions, simultaneously, proved to be a monumental task for a single investigator. A team of two or more researchers would be advantageous in such a multi-faceted design. Observation instruments gave detailed in-depth data for selected periods whereas descriptive records yielded qualitative data for longer time periods.

Research Techniques

Techniques for research and treatment of data were not always apparent from available literature. Certain techniques were established in previous, related studies (for example, FIAC time lines); other investigative techniques were devised by this writer (for example, environment inventory).

Different Contexts

The particular contribution which this study has attempted to make to research in outdoor education and teacher behaviour was the documentation of the teacher-student behaviour in two settings. Unique aspects of outdoor education were the opportunities to live and learn together in novel and changing environments over periods ranging from three to five days' time.

Specific Conclusions

Although the specific conclusions that follow are not meant to be generalizable, they are intended to generate further investigation of the questions raised, as suggested in the research questions posed in Chapter 1 (pages 13-14). The questions are repeated below, preceding each specific conclusion.

Presage Segment

What are the formative, training, and teaching experiences of the teachers selected for the study?

The teachers revealed diverse backgrounds, but their formative experiences contained no institutional preparation that would enable them to undertake their roles as teachers in the outdoor setting. All teachers had received extra-institutional experience in areas related to the outdoor field and were overtly supportive of outdoor education (O.E.) in general and outdoor school (O.S.) in particular.

It was important to know how the teachers were prepared for O.E. and to what extent they were prepared to implement appropriate content and method. The findings were significant because teacher preparation for O.E. was presumed to be through university courses. As teachers in regular schools they were expected to understand and be able to plan and implement outdoor schools.

From the findings of this study, it would appear that outdoor teacher preparation has not flourished in the universities as was expected by the founders of O.E. The informal network which has fostered O.E. in schools has resulted in a superficial treatment of outdoor content and methods.

Either the universities or the informal agencies, including the school or both, should heed the conclusion that there was a suggested lack of adequate preparation of elementary school teachers in O.E. and that outdoor teaching practices may have been superficial.

The hypothesis generated by the foregoing was that: outdoor education as practiced by elementary teachers may need to be re-examined with a view to revising and improving the content and methods employed by formal and informal agencies of teacher preparation.

Process Segment

What are the classroom/outdoor school behaviours *of the students and teachers selected for the study? What are the changes in behaviour observed before, during, and after outdoor school?*

Teacher behaviour was similar in- and out-of-doors, with the exception that, at outdoor school, all teachers displayed more warmth, were less smooth, and less critical of their students. Students behaved similarly in the classroom and out-of-doors.

The behaviour of teachers and students was used as an index of changes in interaction patterns at O.S. While the general trend was toward no change, individual teachers varied. One teacher, the most consistent, was also the most dominant in the talk equation. Another teacher dominated the talk ratio but, other than lecturing, her outdoor verbal frequency was lower during O.S. The other teacher, in contrast to the preferred outdoor teaching style, became a more dominant talker during the outdoor phase.

In spite of the higher rating for warmth, verbal praise was not offered in great quantities by any teacher in any setting. The discrepancy may have been attributable to investigation techniques. Teachers did not accept students' ideas any more frequently at outdoor school than they did in the regular classroom.

It is important to know if O.S. induces changes in behaviour, especially if desirable patterns of interaction are revealed which are not obtainable in the classroom.

The foregoing findings appear to indicate that changes in teacher- and student-coded behaviour, whether desirable or not, are not induced automatically by moving to the out-of-doors. Furthermore, expected verbal behaviour was not consistent with the favoured discovery-learning mode at O.S. The fact that teachers showed more warmth, were less critical, and gave little praise in general were glimmerings of variables long claimed to be encouraged at outdoor school. The lack of academic smoothness may be a necessary tradeoff for increased warmth and reduced criticism.

A dearth of dramatic changes in coded behaviour at O.S. should encourage organizations to examine accepted practices and in-service training in an effort to induce more desirable interaction patterns consistent with O.E. methods.

The hypotheses generated by the foregoing are that: (1) teachers interacting at outdoor school reveal more warmth and less criticism but may be less smooth; and (2) desirable outdoor teaching traits do not automatically occur and require instruction.

Context Segment

What are the classroom, school, and community contexts of students and teachers selected for the study?

The communities from which the schools came supported the concept of outdoor schools. The classes attending O.S. were average or above in academic achievement as measured by standardized tests (CCAT, CTBS). The classroom and outdoor environments were distinctly different, but any impact on the actors was more apparent through descriptive records than through observational instruments. The significance of these findings are discussed below.

With the escalation of school costs and the extra burden of a surcharge for O.S. it was necessary to monitor support from the community as well as to know that these data represented the findings for a defined academic group.

Until recently, the differences between regular classrooms and outdoor schools have been poorly documented. Knowledge of the impact which the outdoor environment has on teachers and students can assist in the planning of successful outdoor schools.

The support emanating from the community was almost 100% although the index may have served to indicate the level of affluence rather than curricular support. The same judgment may be made of the parental visits during the outdoor school sessions in the present study; though undocumented, they were plentiful.

The classes documented at O.S. were not at extreme ends of the academic achievement scale and the data generated represented a small selection of average to above average students.

The classroom and outdoor environments had different effects on the actors but it was difficult to state concisely the extent of the impact. Some observations emerged through the descriptive records which generated the following conclusions:

1. Not all teachers were comfortable teaching in the outdoor setting and these individuals should not undertake such an assignment.

2. The students were bombarded by images, not all of which were audibly registered; therefore, the impact of learning outdoors was difficult to document.

3. Students and teachers erected boundaries in the outdoor classroom which may symbolize the boundaries on behaviour in the regular classroom, thereby attaining a measure of security.

4. Teachers did not always capitalize on outdoor resources, which meant that they either did not know how to use resources or they did not wish to make use of them.

5. Some things were taught at O.S. which might have been better taught elsewhere. Activities chosen for O.S. should make the best use of time and resources.

The hypotheses generated by the foregoing include: (1) community support is significant to the continuation of outdoor schools; (2) there is no significant difference in the effect of outdoor school on students with high or low academic achievement; and (3) teachers and students at outdoor school do not make full use of the outdoor setting.

Product Segment

What are the products of students in classrooms and outdoor schools?

The students' view of their teachers in the acceptance-understanding and problem-solving skill dimensions declined slightly immediately upon their return from O.S. The slight decline may have been attributable to the timing of the questionnaire (immediately post-O.S.) when their responses may have been confounded by "post-O.S. let-down."

It is necessary to have outcome and or product measures in order to gauge the effect of O.S. on the children in one or more domains of learning. The acceptance-understanding and problem-solving dimensions are important teacher attributes in O.S. literature. If the product measure is indicative of a decline in those dimensions, outdoor educators may have to adjust their goals or their methods. If the attributes are worthwhile, the teachers concerned should examine their relationship with students relative to those dimensions.

The hypotheses generated by the foregoing may be phrased both negatively and positively: (1) teachers decline in the dimensions of acceptance-understanding and problem-solving skills following outdoor school; and (2) with training, teachers can improve their rating after outdoor school in the dimensions of acceptance-understanding and problem-solving skills.

Specific conclusions arising from the integrating foci of climate and directiveness, management and control, and the classroom as a social system, are discussed below.

Climate and Directiveness

What is the nature of the classroom climate and teacher directiveness in the classroom and at outdoor school?

In their comprehensive review of research on teaching, Dunkin and Biddle (1974) reported confusion between warmth and directiveness. At an earlier stage of research it had been presumed that teachers could not be warm and direct. Later it became clear that the variables were not inversely related. Data generated in the present study confirmed later research which indicated that warmth and teacher directness were not dependent on each other.

The need for teachers to be direct and warm in any setting, but particularly in outdoor schools, cannot be overemphasized. In the novel, unbounded outdoor environment, teachers may be more likely to lecture and give directions. At the same time, however, the teachers have extended opportunities to be with children in informal settings when warmth may cement relationships.

Research on these variables indicated that teachers are primarily direct, as confirmed by the present data. One of the main values claimed for O.S. has been that the teachers and students get to know and appreciate one another. The high rating for warmth while at O.S. confirmed for at least three teachers that, while they remained primarily direct, they revealed warmth toward their students. Outdoor schools may be opportune places to develop warmth in spite of being direct or indirect.

Personnel in teacher pre-service and in-service training can take some assurance that warmth may be present or developed in teachers who are either direct or indirect.

Teachers who were indirect (more responsive) were not associated with students who initiated more. Teacher A was most responsive of the three teachers with a corresponding high student initiating frequency relative to their other lessons. The highest student initiation frequency, however, was associated with Teacher C who recorded one of the lowest response frequencies.

These findings were significant because they disagreed with those of Dunkin and Biddle (1974:120) who found that teachers who were responsive were associated with students who initiated more.

The present findings suggest that when teachers accepted feelings, praised, and accepted ideas there was no corresponding increase in student initiation (with the exception of one teacher). Outdoor education authors have referred to the preferred teacher behaviour at O.S. as being indirect while the student behaviour was expected to be initiating. The "ideal" was not found in this study. One could not assume cause and effect but the phenomena should be examined in future O.S. studies.

Researchers should pursue the question of the associated variables in order to clarify the relationship between the O.S. variables.

The hypothesis generated by the foregoing is that: teachers who are indirect are associated with students who do not exhibit more initiating at outdoor school.

When teachers behaved in a more indirect fashion they were found to be more accepting of students' ideas. The fluctuation in the ranking of teacher response ran almost parallel to the three-phase ranking of Category 3 (accepting student ideas). The statistic is to be expected in view of the fact that Category 3 made up a large part of the total teacher response. There was reasonably consistent fluctuation but the higher frequencies did not generally occur at O.S.

The importance of these data lies in the fact that outdoor schools have attempted to foster discovery-learning of which accepting student ideas is a part. Increases in total teacher response may stimulate more student ideas (initiation), although cause-and-effect has not been established. Should it prove worthwhile, teachers may be induced to be more indirect by training with instruments such as FIAC. Personnel in charge of O.S. pre-service and in-service training could use the data in order to promote greater realization of discovery-learning.

The hypothesis generated by the foregoing is that: teachers who are more responsive (indirect) are more accepting of student ideas.

Management and Control

How does the teacher discipline and manage students in the classroom and out-of-doors?

The present data showed that: (1) teachers talked for more than half the time; (2) students spoke for less than one third of the time in all cases but one.

With the exception of one teacher, who spoke less indoors, the teachers made more than half the utterances in- and out-of-doors. Two of the teachers accounted for 75% of all talk which was unusually high and certainly above what Flanders (1974) considered usual. Control and management of the classes was maintained through the unending stream of lectures, directions, and some criticism, both at regular and outdoor schools. Student talk was found to be correspondingly lower with the exception mentioned above. All teachers were more direct at O.S. and students' initiations were lowered accordingly. No clear pattern of HITB management variables emerged with the exception of smoothness (referred to earlier), for which all teachers were rated lower at outdoor school.

It was seen to be important to know the patterns of interaction at O.S. because the outdoor education literature has favoured an indirect approach, with a view to having the children initiate more in a discovery-learning mode.

The data indicated that teachers were reluctant at O.S. to release the reins on their charges. All teachers dominated the talk equation which (as it appeared to the observer) was to lecture and to give directions in a novel environment. Because safety was a paramount concern, the children were not allowed to roam but were incessantly directed to the tasks at hand. It must be pointed out, however, that criticism did not increase at O.S.; rather, the opposite occurred, which would indicate that the stream of teacher talk was offered in a neutral or kindly vein.

For those who prepare teachers for O.S., the implication from the above is that more direct teaching is inevitable in conventional outdoor schools. If less direct methods are desirable, as in a discovery-learning approach, variables other than venue would require modification.

The hypothesis formulated here is that: teachers at outdoor school talk for more than half the time and the students talk for correspondingly less than half the time.

The Classroom as a Social System

What is the social system of an outdoor school?

Data from this aspect of the study were embodied in the total "week in the life of a classroom teacher at outdoor school." Although the larger picture (as presented in Chapter 4) did not lend itself to a summary, some findings and conclusions are offered below.

The first consideration is time spent with various constituents by Teacher D at outdoor school. Of her 70 waking hours, the teacher spent approximately:

1. 50% with the students in either a leading or supporting role;
2. less than 1% with the O.S. high school counsellors;
3. 33% with fellow teachers;
4. 10% alone, exclusive of sleep time; and
5. 6% with the observer.

It was meaningful to document the time break-down because actual times spent at various O.S. activities have been poorly documented in the past.

The data are subject to qualitative as well as quantitative interpretation. Of the time spent with the students, most was spent in a formal, structured, instructional setting, which meant that there was very little left for the informal setting. Outdoor school has been cited for improved opportunities in informal interaction between teachers and students, but this did not occur in Teacher D's case, with the exception of the loghouse and hayride experiences. The opportunities for 1:1 diadic exchange and student initiation were correspondingly limited. It may be pointed out that although D's time with the children was about 50% of the total, it still represented 35 hours of contact, whereas regular school totalled approximately 25 hours. Despite this, if outdoor school is to offer more opportunities for teacher-student interaction in informal settings, the schedule may have to be re-examined. It might also be noted that this particular O.S. maintained a permanent staff of four; thus, in many situations, the problems would be confounded.

Outdoor school may serve in an ongoing, in-service function for inexperienced teachers. D put to good use the time that she spent with her colleagues. While the time spent may vary, the function of in-service should be recognized, especially for beginners.

The time required by individuals to be alone must remain as unfathomable as human nature itself, but most people need some solitude, and in the busy O.S. schedule time spent alone at 10% of total may be little enough. The effect of O.S. appeared to be mentally and physically exhausting, as evidenced by the difficulty with which D stayed on schedule.

The implication of the schedule should be considered by O.S. organizers with a view to balance. Further research should be conducted on time disposition as well as on the qualitative implications.

The second consideration is the behaviour concept which revealed that Teacher D encountered 82 new behaviour setting sites during her week at O.S. The main impact was seen to be sheer sensory overload. D was very pliant in accommodating herself to role expectations and, to a lesser extent, submitting to environmental coercion; however, she seemed overwhelmed by the diversity and educational potential of features in the micro-systems. D's lack of sensory awareness to the materials and methods within the ranch study should not so much reflect on her effort but, rather, on her view of O.S. and on those who have influenced her. It was the observer's opinion that D was not the only classroom teacher who used O.S. as a life-sized visual aid, thereby avoiding first-hand experiences with elements of discovery, which may be among the more unique aspects of O.S.

There was evidence in all four teachers in this study of performing that which could be done as well, if not better, in the regular classroom. One of the more consistent features of the outdoor setting was change. In the discovery-learning mode, change may be viewed as an ally rather than a foe. The teacher, therefore, has to be adaptable and flexible. Incidentally, it might be said that it would be hard to find a more pleasant, even-tempered, diligent, caring individual than Teacher D.

Personnel concerned with the pre-service and in-service training of classroom teachers in O.E. should re-examine the content and methods at O.S. to ensure that the unique aspects are implemented. Care should be taken also with the orientation and preparation of teachers in the best use of the behaviour settings with a view to selecting and high-lighting features not found elsewhere.

From the foregoing, a hypothesis might be that: classroom teachers could make better use of the unique aspects of outdoor education methods and materials.

Methodological Critique

The two sections below deal with a critique of the instrumentation and data collection, generally, followed by the data collection of the "day" and "week" at regular and outdoor schools, ethnographic research, and teacher education.

Instrumentation and Data Collection

Flanders Interaction Analysis Category

FIAC (Flanders et al., 1974) system is satisfactory for general descriptions of superior-subordinate relationships to be found in the classroom. The instrument could and should have been applied with subscripts to clarify sequences and certain effects. The collection of raw data was accomplished with audio tapes. The microphone was a "wireless" type which performed well inside the classroom for recording the teacher's voice. Shortcomings of the wireless microphone (RCA model) included a short range (maximum 50 metres), and a radio interference from nearby FM broadcasting radio stations. As a result of the poor reception, the teacher's recorded voice was not clear outdoors whereas the students' talk was obscure both in- and out-of-doors. Directional or parabolic microphones may have improved the quality of the recordings.

High-Inference Teacher Behaviour Rating

The HITB (Eggert, 1977) was easy to use after a brief training period. Coding generally took place on a "live" basis which rendered the data difficult to check. Although the coding was intended to offer high-inference measures of FIAC low-inference data, the intervals and periods of coding did not coincide; thus, data from similar sources did not always agree.

Lumby Outdoor School Study

This self-reporting form (LOSS, Lumby, 1979) elicited relatively superficial data about the respondents. Besides age, sex, training, and teaching experience, the form could have sought more penetrating responses relative to the preparation, execution, and follow-up of outdoor school.

Minnesota Teacher Attitude Inventory

The MTAI (Cook et al., 1951) was administered quickly but did not yield reliable results. At least one teacher expressed exasperation with the instrument. It may be out-of-date, and a modern version should, in that case, be sought.

Environment Inventory

The inventory (Lumby, 1979) took stock of the students' environment but omitted documentation of the interaction or impact of the environment on teacher and students.

Day and Week in the Life of a Classroom Teacher at Outdoor School

The "days" and the "week" data were collected solely by the researcher, who recorded copious descriptive notes throughout the period, an extremely time-consuming exercise. During the transcription of raw data the researcher would have appreciated the assistance of audio- and video-tape recordings in order to aid the recall of detail, sequence, and simultaneous events. Such recording devices would, of course, be cumbersome at a mobile lesson in addition to being conspicuous in any setting.

Classroom Atmosphere Questionnaire

The CAQ (Hoffmeister, 1971) was quickly administered and tabulated. Normative data were not available at the time of its administration. The decline noted following O.S. may have been attributable to post-O.S. let-down, rather than a real decline of the dimensions measured.

Flanders Interaction Analysis Category

The FIAC (Flanders et al., 1974) system data were presented as frequency percentages, which were useful. Data could, however, have been amplified by the use of interaction sequences (for example, coupling of teacher talk which accepted ideas with student talk which initiated).

High-Inference Teacher Behaviour Scale

For the HITB rating scale (Eggert, 1977) data were presented as mean average ratings for lessons but the ratings were, in reality, for half a lesson. Many more lessons should have been coded in order to provide a more representative sample.

Recommendations

The framework for the study was used to prepare the main recommendations. The presage-context-process-product variable model (Dunkin & Biddle, 1974) is supplemented by recommendations for research in the ethnographic mode. Suggestions for teacher education are added.

Research Suggestions

The following suggestions were seen to arise as a result of the study findings.

Presage Segment

1. As the teachers were sympathetic to outdoor education in this study, teachers who are "reluctant volunteers" should also be studied.

2. As the teachers were at or about the 50th percentile on the MTAI, teachers who are at opposite ends of the autocratic-democratic continuum should be studied to show atypical subjects.

Context Segment

3. As the students were equal to or just above the city-wide mean average achievement in standardized tests, students who fall well below and well above the means should be studied.

Process Segment

4. In this work the teachers were rated on the HITB instrument using the protocol of coding the first four variables out of eight for the first half of the lesson and the remaining four variables during the second half. The variable commonly rated high for all three teachers was "warmth." Thus, teachers should be coded for eight variables over the entire lesson, and more subjects should be coded in replication studies in order to "strengthen" the findings.

5. The FIAC results showed no clear pattern; thus, refinement of the FIAC coding scheme should include subscripts so as to determine sequences, and Wood and Cheffers' (1978) modification which allows coding of non-verbal communication. A larger sample would also permit generalizations.

6. Discrepancies were revealed between the data collected with the two instruments (HITB and FIAC) where similar variables were coded. Video recording would allow both instruments to be used under similar conditions (including opportunities to check coding) and would give the additional advantage of allowing the tapes to be used for "stimulated recall."

Product Segment

7. The students completed the CAQ one week before

and one week after outdoor school, with generally declining scores. The CAQ should be administered at various intervals so as to avoid confounding variables.

8. As the CAQ was the only product measure used, others should be employed in subsequent studies in order to provide additional product measures from outdoor school.

Ethnographic Research

1. A full ethnography of a classroom teacher at regular school and outdoor school should be undertaken during a 7-week period in order to allow for extensive, intensive coverage of the teacher in the regular classroom before and after, as well as during, outdoor school.

2. The teacher studied for one week at outdoor school worked with constantly changing groups. Teachers who remain with the same group, as an alternative organizational pattern for the 5-day period, should also be studied.

Teacher Education

The teachers in the present study had received no specific training at university to prepare them for their role at outdoor school. The behaviour they revealed did not demonstrate the hopes held by early outdoor educators. Teachers who have undertaken formal outdoor education preparation in university should be studied. In the absence of such subjects, colleges of education should consider piloting experimental programs in order to prepare elementary-level teachers for the outdoor teaching role which they may well have to assume. Attention should be paid to content and pedagogy appropriate for the outdoor setting.

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APPENDICES

APPENDIX A

Presage Data Instruments

Teacher characteristics:

1. LOSS
2. OEOT

Lumby Outdoor School Study*

1. Name

2. Age

3. Post-secondary:

   a) degrees __________year

   __________year

   __________year

   c) Major __________

   Minor __________

   b) professional preparation

   Elem. ____

   Sec. ____

   d) distinctions or similar references (i.e., G.P.A.)

4. Teaching experience?

   School Grade/Admin. Years Subjects

5. Personal schooling (K-Gr. 12) distinctive features

6. Occupation of father?

   mother?

7. What other full-time jobs have you held?

8. What other positions have you held which enabled you to work with youth?

9. What preparation have you had for outdoor education?

   In courses? Please elaborate

   In experiences? Please elaborate

---

*LOSS (Lumby, 1979)

10. Do you feel that the outdoor school experience changed your relationship with the students:
    Positively? -- Group as a whole
    -- Individuals or small groups (be specific)

    Negatively? -- Group as a whole
    -- Individuals or small groups (be specific)

11. Did you think that you revealed facets of yourself which the students in general had never seen at school? Please explain:

    Did you mind revealing such facets?

12. Did you perceive students behaving in ways different from the ways you normally associate with them at school? Illustrate, if possible, with examples that:

    pleased you

    displeased you

    or merely confounded you

13. To what extent were your academic objectives met through the outdoor school experience?

14. To what extent were your social objectives met through the outdoor school experience?

15. To what extent were your outdoor living skills-overnight experience objectives met?

16. To what extent were the student learnings enhanced or diminished by the outdoor setting?

17. Were there any unplanned events which contributed to the above-named objectives in a positive or negative fashion?

    Illustrate, please

18. What aspects of the program could have been accomplished regardless of the:

    a) outdoor setting?

    b) lodge setting?

Outdoor Education Opinionnaire for Teachers*

Introduction

This survey is designed to obtain your opinion on outdoor education, your degree of involvement with outdoor education and your background in outdoor education activities. Please indicate your real feelings and ANSWER ALL QUESTIONS PERTAINING TO YOU. Feel free to comment on any section. The opinionnaire will take about 20 minutes of your time.

> Outdoor Education: For the purpose of this study outdoor education is defined as any part of a school program outside the school building excluding regular physical education classes. (Consider orienteering as outdoor education.) Outdoor activities could include short nature walks, studies in or near the school yard, week-long canoe trips, trips to places like fire halls, bakeries, mines, city council or museums.

INSTRUCTIONS FOR PARTICIPATING IN THE RESEARCH

Please read the following very carefully:

1. If you have not been involved with outdoor education activities in the last four years and don't expect to be involved this year, please answer only sections C - F.

2. If you have been involved with outdoor education activities in the last four years or expect to be involved this year, please answer the entire opinionnaire.

SECTION A - DIFFICULTY

KEY TO RESPONSES:

1 = Extremely difficult
2 = Relatively difficult
3 = Average difficulty
4 = Relatively easy
5 = Extremely easy

Some aspects of programs are easy to understand and put into practice, while others are difficult. Please respond to the following statements by circling the number corresponding to the degree of ease you have had with outdoor education activities.

---

*OEOT (Brekke, 1977)

	Extremely difficult	Relatively difficult	Average difficulty	Relatively easy	Extremely easy
1. Identifying the objectives of outdoor education is . . .	1	2	3	4	5
2. Understanding what is expected of you as a teacher of outdoor education is . . .	1	2	3	4	5
3. Developing activities in outdoor education is . . .	1	2	3	4	5
4. Carrying out activities in outdoor education is . . .	1	2	3	4	5
5. Describing to others the effects of outdoor education activities on the students is ...	1	2	3	4	5
6. Discussing with colleagues the philosophies and strategies of outdoor education activities is . . .	1	2	3	4	5

Comments: ____________________________________

____

SECTION B - INFLUENCING FACTORS

KEY TO RESPONSES:
1 = No experience with
2 = No influence
3 = Small influence
4 = Large influence

In this section the emphasis is on the factors that influenced your perceived value of outdoor education.

1. Indicate the degree of influence each of the following factors had on your awareness of the value of outdoor education activities.

	No experience with	No influence	Small influence	Large influence
a) Periodical articles about outdoor education	1	2	3	4
b) Books about outdoor education	1	2	3	4
c) Teaching guides or manuals on outdoor education	1	2	3	4
d) University courses on outdoor education (please specify if possible) ____________	1	2	3	4
e) Teacher workshops or professional development courses in outdoor education (please specify if possible) ____________	1	2	3	4
f) Non-credit, "special interest" courses which relate to outdoor learning (i.e., hunter training, nature photography, taxidermy, canoeing). Please specify ____________	1	2	3	4
g) Membership or involvement with any clubs or organizations with strong interest in the out-of-doors (consider your youth also). Please specify ____________	1	2	3	4
h) Informal contract with a colleague (please specify if possible) ____________	1	2	3	4
i) Discussion with an educational consultant (please specify if possible) ____________	1	2	3	4

2. KEY TO RESPONSES: 2 = No assistance and/or encouragement
3 = Some assistance and/or encouragement
4 = Great assistance and/or encouragement

Indicate the degree of assistance and/or encouragement each of the following gave you in implementing your outdoor education activities.

	No assistance	Some assistance	Great assistance
a) Principal (or vice-principal) of your school	2	3	4
b) Parents of your students	2	3	4
c) Teaching guides or manuals on outdoor education	2	3	4
d) University course(s) (please specify) _____ ________________________________	2	3	4
e) Amount of inservice made available to you	2	3	4
f) Government agencies (e.g., fisheries, forestry, etc.) (please specify) __________ ________________________________	2	3	4
g) Private enterprise (please specify) _______	2	3	4
h) (i) Other teachers in your school	2	3	4
(ii) Other teachers outside your school	2	3	4
i) Supervisory staff (superintendent or curricular associate)	2	3	4

3. a) The decision to become involved in outdoor education activities was made: (circle)

    1. by myself (optional)

2. in consensus with others (collective)

3. by the principal, superintendent or consultant (authority)

b) Have you been involved in outdoor education activities of more than one-half day in length?

1. Yes 2. No

c) Approximately how many days (1 day = 5 hrs.) will you spend on outdoor education activities during this school year? ____________(days)

4. After your experiences with outdoor education, do you expect to continue with outdoor education activities?

1. Yes 2. No 3. Undecided

Comments: ____

____

____

SECTION C - VALUES OF OUTDOOR EDUCATION

KEY TO RESPONSES:
1 = Strongly disagree
2 = Disagree
3 = Neutral or no opinion
4 = Agree
5 = Strongly agree

In this section, the emphasis is on your opinions about school involvement in outdoor education.

Please circle the number indicating your level of agreement with each statement.

	Strongly disagree	Disagree	Neutral or no opinion	Agree	Strongly agree
1. Outdoor education should be part of the curriculum at some or all grade levels.	1	2	3	4	5
2. Schools should offer opportunities for students to experience outdoor recreation such as hiking, canoeing and taking care of themselves in the outdoors.	1	2	3	4	5
3. Students should have the opportunity to study directly the effects of human activities like road construction, pipeline construction or mining on the environment. They will then be better able to make reasonable judgments on environmental issues (i.e., balancing good and bad effects of present methods of development).	1	2	3	4	5
4. I believe that parents place a high value on outdoor education activities for the students I teach.	1	2	3	4	5
5. Outdoor education activities make classroom learning more meaningful.	1	2	3	4	5
NOTE: For the next 3 questions only, circle (3) if you find outdoor activities and classroom activities of equal value.					
6. Outdoor activities are better than classroom activities for increasing students' awareness and concern for the environment.	1	2	3	4	5
7. Outdoor activities provide better opportunities than classroom activities for improving students' understandings of others.	1	2	3	4	5
8. Outdoor activities provide better opportunities than classroom activities for growth in such areas as cooperativeness, judgments and responsibility.	1	2	3	4	5

9. Outdoor activities can be related to more than two subjects in the present curriculum. 1 2 3 4 5

10. Outdoor education activities can be implemented a little at a time; it is not a matter of "all or nothing." 1 2 3 4 5

Comments: ______________________________

____

____

SECTION D - AMOUNT OF OUTDOOR EDUCATION ACTIVITIES

1. If outdoor education is considered to be valuable and there are sufficient teachers ready to carry out a more extensive program in four grades only, state the four grades in which you feel the most benefit would be gained from outdoor education activities (K - 12)

   a) _____ b) _____ c) _____ d) _____

2. a) If it is possible to have outdoor education activities in each grade, write the total number of school days (time equivalent, not necessarily full school days) you think should be spent on outdoor education activities (as defined on page 1) for each of the following grades during the school year. (If the school is organized on the semester system, consider the total school year.)

Grade	Number of School Days to be spent outdoors
K	______
3	______
6	______
9	______
12	______

   b) Do you believe that outdoor education activities (as defined on page 1) should be part of the program of studies at all grade levels? (circle)

   1. Yes 2. No

Comments: ____

____

SECTION E - TEACHER FAMILIARIZATION

Following is a list of eight attractive means of becoming familiar with a program of studies, plus a space for "other." Place check marks (√) beside the 3 which you feel would best assist teachers to implement outdoor education activities if they were available:

___ 1. Membership on an active unit planning committee

___ 2. Workshops and seminars operated by visiting personnel (e.g., from a university or a provincial department of education)

___ 3. Workshops and seminars operated by local personnel

___ 4. Conferences on outdoor education with expert speakers, etc.

___ 5. University courses in outdoor education

___ 6. Availability of current books and journals on outdoor education

___ 7. Observation of lessons demonstrating the implementation of outdoor education

___ 8. Availability of model units prepared specifically for your grade level

___ 9. Other ____

Comments: ____

____

APPENDIX B

CONTEXT DATA INSTRUMENT

Classroom or outdoor setting: Ethnographic record

Ethnographic Split Record

Ethnographer: ____________________   Page __ of __

Coder: ____________________

Date: ____________________   Time: __________

Inferences: Impressions interpretations, opinions, reservations, sketches, weather data.	Time	SRI Start	Noise Level	Events: What is going on; note time every 3 to 5 mins. Mark pairs.

Noise Scale: (Tikunoff et al., 1975)
0 Silent
1 Small amount
2 Acceptable to teacher
3 Acceptable to teacher but not to observer
4 Unacceptable to teacher

Ethnographic Record*

Questions for the ethnographer:

1. What does the teacher do consistently that gets a particular response? What are the reasons?
2. What kind of atmosphere is created? How?
3. Is learning happening?
4. What is most of the time spent on?
5. Are children on-task, probably on-task, off-task, or probably off-task?
6. What is the task?
7. Do the children know what the task is?
8. What does the teacher give you regarding herself? Her concerns?
9. Where is her concern focussed?
10. What kind of tone of voice does she use?
11. Does it vary with (1) kids, (2) other factors?
12. How does she establish order?
13. How are classroom decisions made?
14. How does the teacher let students know when their behaviour (content-related or otherwise) is acceptable? Unacceptable? Form a little hypothesis and look for evidence to support or refute it. Write all the time--seating, grouping, sex, etc.--teacher's tone of voice, position, time spent at desk. Follow hunches, make inferences. Watch for emerging patterns.

---

*Johnson and Gardner, 1979

APPENDIX C

PROCESS DATA INSTRUMENTS

Teacher classroom or outdoor behaviour (1-4 incl.)

1. High Inference Teacher Behaviour Rating Scale
2. HITB Rating Sheet
3. Flanders Interaction Analysis Category System
4. FIAC Coding Sheet

Student classroom or outdoor behaviour (3-4 incl.)

Scoring Range and Meaning for the Category Withitness*

1. The teacher makes frequent errors in attempting to deal with deviant behaviour. He/she may over-react to a situation, may react late or not at all (timing), may be off target in his/her reprimands and/or may desist a less serious deviancy while overlooking a more serious deviancy.

2. Between 1 and 3.

3. The teacher sometimes makes errors in attempting to deal with deviant behaviour, i.e., over-react, timing, target and minor-major deviancy, and sometimes makes no errors in desist attempts.

4. Between 3 and 5.

5. The teacher makes few of the above errors in attempting to deal with deviant behaviour.

Scoring Range and Meaning for the Category Overlappingness*

1. The teacher almost always attends to only one issue at a time. He/she either remains immersed in one issue or drops it and goes all out for another. For example, the teacher, while working with one group, ignores deviant behaviour in another group, or ignores intruding children from another group, or goes all out and becomes immersed in the deviance or intrusion.

2. Between 1 and 3.

3. The teacher sometimes attends to more than one issue at a time.

4. Between 3 and 5.

5. The teacher almost always attends to more than one issue at a time. He/she, while working with one group, is able to deal with deviance and intrusions, verbally and non-verbally.

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*Eggert, 1977:190-197

Scoring Range and Meaning for the Category Smoothness*

1. The teacher frequently acts in a manner which interferes with the ongoing flow of academic events. Actions of the teacher are not goal-oriented. He/she may pay attention to irrelevant or undue attention to intrusive details (stimulus-boundedness). He/she may burst in on children's activities with an order, statement or question (thrusts). He/she may shift back and forth from one activity to another and back again, leaving things hanging in mid-air (dangles and truncations).
2. Between 1 and 3.
3. The teacher sometimes acts in a manner which interferes with the ongoing flow of academic events. Actions of the teacher are sometimes goal-oriented and sometimes are not, i.e., some stimulus-boundedness, thrusts, dangles and truncations are evident.
4. Between 3 and 5.
5. The teacher rarely exhibits the above interfering behaviours.

Scoring Range and Meaning for the Category Momentum*

1. Teacher behaviours frequently slow down the pace of the lesson inappropriately. This is done by overdwelling on pupil behaviour, a subpoint rather than a main point, physical props rather than substance, and on instructions or details to the point of boredom. It is also slowed down by fragmentation, i.e., dealing with pupils one at a time when it is appropriate and more efficient to deal with them as a group, or dealing with props one at a time rather than en masse.
2. Between 1 and 3.
3. Teacher behaviours sometimes slow down the pace of the lesson by overdwelling and fragmentation.
4. Between 3 and 5.
5. Teacher behaviours rarely slow down the pace of the lesson by overdwelling or fragmentation.

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*Eggert, 1977:190-197

Scoring Range and Meaning for the Category Clarity*

1. The teacher, when giving instructions, answering questions or explaining material to the class, is unclear in her presentations. The presentations may be too complex, ambiguous, or make use of unfamiliar or unrelated concepts and terms. Answers given are not specific but are vague and evasive. The teacher uses qualifiers (e.g. maybe, sometimes, it could be) excessively. The teacher rarely gives appropriate examples, uses illustrations, states objectives, summarizes, or checks for student understanding.

2. Between 1 and 3.

3. The teacher, when giving instructions, answering questions or explaining material to the class, is sometimes clear and sometimes unclear in his/her presentations.

4. Between 3 and 5.

5. The teacher, when giving instructions, answering questions or explaining material to the class, is clear in his/her presentation. Adequate use of examples and illustrations is made, objectives are clearly stated, main points are summarized, and adequate checks of student understanding are made.

Scoring Range and Meaning for the Category Persuasiveness (Teacher's Ability to Motivate)*

1. The teacher is the kind of person that communicates a socially weak and uninfluential person. He/she is frequently unable to get students to do work related to the objectives of the lesson.

2. Between 1 and 3.

3. The teacher is the kind of person that communicates an average persuasively powerful person. He/she is sometimes able to motivate students to work and sometimes unable to do so.

4. Between 4 and 5.

5. The teacher is the kind of person that communicates a socially influential or persuasively powerful person. He/she is almost always able to get students to do the work related to the objectives

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*Eggert, 1977:190-197

of the lesson. [Note: This level does not imply that the teacher has chosen all the goals or objectives for the student.]

Scoring Range and Meaning for the Category Warmth*

1. The teacher gives explicit evidence of rejection of the student, his/her ideas, experiences, opinions or feelings. Criticism is harsh and gives explicit evidence of a negative feeling for the student expressed by the teacher.

2. The teacher is mechanical and/or passive in his/her responses. Mild criticism, a lack of concern or ignoring, provide implicit evidence of disinterest in the student.

3. The teacher provides no explicit or implicit evidence of dislike or rejection of the student. He/she does not criticize nor is there a clear expression of warmth, i.e. there is interest shown but not warmth.

4. The teacher accepts, allows pupil ideas, experiences, opinions, and feelings. There is implicit evidence of warmth and respect through praise and encouragement.

5. The teacher gives explicit evidence of a deep caring, prizing, and valuing of the student, and this is made clear to the student. Expectations of the student's highest and best is pressed for, indicating a deep respect. Voice tone and manner give evidence of a close relationship.

Scoring Range and Meaning for the Category Empathy*

1. The verbal and behavioural expressions of the first person either do not attend to, or detract significantly from, the verbal and behavioural expressions of the second person in that they communicate significantly less of the second person's feelings than the second person has communicated himself/herself.

2. While the first person responds to the expressed feelings of the second person, he/she does so in such a way that he subtracts noticeable affect from the communications of the second person.

3. The expressions of the first person in response to the expressed

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*Eggert, 1977:190-197

feelings of the second person are essentially interchangeable with those of the second person in that they express essentially the same affect and meaning.

4. The responses of the first person add noticeably to the expressions of the second person in such a way as to express himself/herself.

5. The first person's responses add significantly to the feeling and meaning of the expressions of the second person in such a way as to (1) accurately express feeling levels below what the person himself/herself was able to express or (2) in the event of ongoing deep self-exploration on the second person's part, to be fully with him/her in his deepest moments.

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*Eggert, 1977:190-197

HITB RATING SHEET

School: ______________ Date: ______________ Start: _______

Teacher: ______________ Observer: ___________ Stop: _______

Lesson type: __________ Interval: ___________

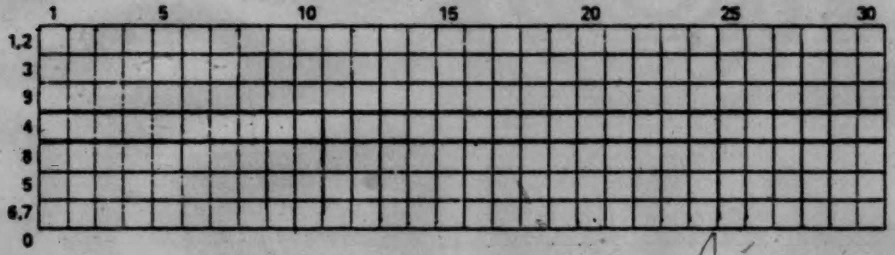
Variable	1	2	3	4	Total	$\bar{X}$
W						
O						
S						
M						
C						
P						
WR						
E						

FLANDERS INTERACTION ANALYSIS CATEGORIES* (FIAC)

Teacher Talk	Response	1. Accepts feeling. Accepts and clarifies an attitude or the feeling tone of a student in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.
		2. Praises or encourages. Praises or encourages students; says "um hum" or "go on"; makes jokes that release tension, but not at the expense of a student.
		3. Accepts or uses ideas of students. Acknowledges student talk. Clarifies, builds on, or asks questions based on student ideas.
		4. Asks questions. Asks questions about content or procedure, based on teacher ideas, with the intent that a student will answer.
	Initiation	5. Lectures. Offers facts or opinions about content or procedures; expresses his own ideas, gives *his own* explanation, or cites an authority other than a student.
		6. Gives directions. Gives directions, commands, or orders with which a student is expected to comply.
		7. Criticizes student or justifies authority. Makes statements intended to change student behavior from nonacceptable to acceptable patterns; arbitrarily corrects student answers; bawls someone out. Or states why the teacher is doing what he is doing; uses extreme self-reference.
Student Talk	Response	8. Student talk—response. Student talk in response to a teacher contact that structures or limits the situation. Freedom to express own ideas is limited.
	Initiation	9. Student talk—initiation. Student initiates or expresses his own ideas, either spontaneously or in response to the teacher's solicitation. Freedom to develop opinions and a line of thought; going beyond existing structure.
Silence		10. Silence or confusion. Pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

*Based on Ned A. Flanders *Analyzing Teaching Behavior,* 1970. No scale is implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate, not to judge a position on a scale.

TIMELINES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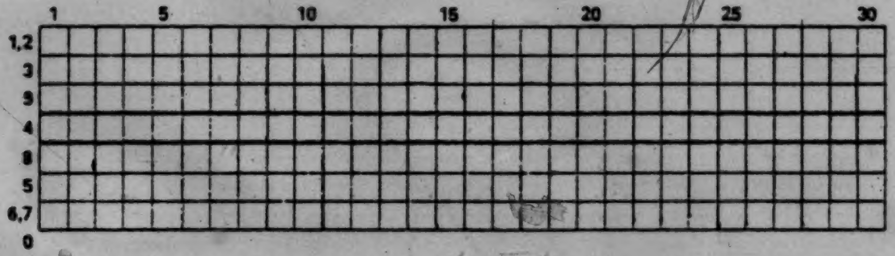
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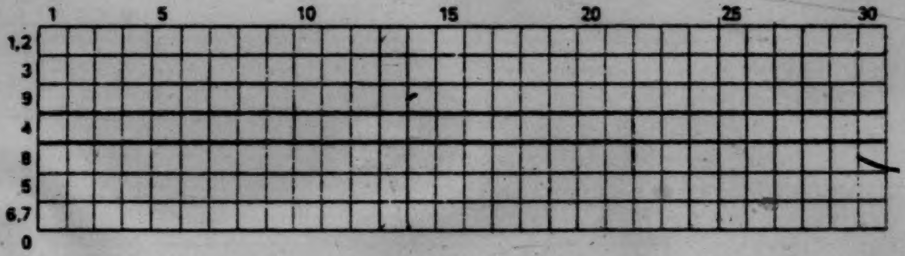
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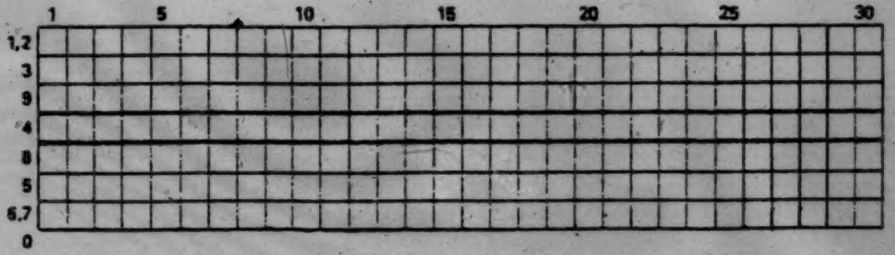
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APPENDIX D

Product Data Instrument

Student-Teacher relationship: Classroom Atmosphere Questionnaire

CLASSROOM ATMOSPHERE QUESTIONNAIRE

NAME ____________ NUMBER ____________ LOCATION ____________

IDENTIFICATION NUMBER		0 1 2 3 4 5 6 7 8 9		0 1 2 3 4 5 6 7 8 9		0 1 2 3 4 5 6 7 8 9
		0 1 2 3 4 5 6 7 8 9		0 1 2 3 4 5 6 7 8 9		0 1 2 3 4 5 6 7 8 9
		0 1 2 3 4 5 6 7 8 9		0 1 2 3 4 5 6 7 8 9		0 1 2 3 4 5 6 7 8 9
LOCATION NUMBER		0 1 2 3 4 5 6 7 8 9		0 1 2 3 4 5 6 7 8 9		0 1 2 3 4 5 6 7 8 9
MISCELLANEOUS CODES		SEX M F	M1	0 1 2 3 4 5 6 7 8 9	M2	0 1 2 3 4 5 6 7 8 9
	M3	0 1 2 3 4 5 6 7 8 9	M4	0 1 2 3 4 5 6 7 8 9	M5	0 1 2 3 4 5 6 7 8 9

Use only a #2 pencil to mark your responses.

Mark only one response for each question.

Erase completely any response you wish to change.

Answer choices are: 1 = Never
2 = Seldom
3 = Depends
4 = Usually
5 = Always

YOUR TEACHER:

1.	Respects your ideas and concerns.	1	2	3	4	5
2.	Helps you learn to understand others.	1	2	3	4	5
3.	Accepts your feelings.	1	2	3	4	5
4.	Helps you individually when you need it.	1	2	3	4	5
5.	Sees you as a responsible person.	1	2	3	4	5
6.	Helps you learn how to separate fact from opinion.	1	2	3	4	5
7.	Likes you.	1	2	3	4	5
8.	Helps you to learn how to understand yourself.	1	2	3	4	5
9.	Treats you fairly.	1	2	3	4	5
10.	Helps you learn how to communicate with others.	1	2	3	4	5
11.	Is enthusiastic about working with you.	1	2	3	4	5
12.	Helps you to develop skills in listening to others.	1	2	3	4	5
13.	Is easy to talk to.	1	2	3	4	5
14.	Helps you learn how to organize materials.	1	2	3	4	5
15.	Understands you.	1	2	3	4	5
16.	Helps you learn to make wise decisions.	1	2	3	4	5
17.	Trusts you.	1	2	3	4	5
18.	Helps you learn how to find information.	1	2	3	4	5
19.	Encourages you.	1	2	3	4	5
20.	Helps you learn how to use your time wisely.	1	2	3	4	5

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Form CAQ-3

CLASSROOM ATMOSPHERE QUESTIONNAIRE
Form CAQ-3

The following items have been selected because we think they may provide an estimate of the kind of atmosphere in your classroom. By classroom atmosphere we mean how you feel about the things that have happened to you in your classroom. In some classrooms, you may feel like you get the kind of help you need and that you are accepted and treated as a worthwhile person. You probably like to go to such classrooms. In other classrooms, you may feel like you are not really accepted or treated as an individual, and that you are given little help in learning the things you do not know. You may feel like you do not even want to go near such classrooms.

There are five possible responses for each question, such that 1 = Never; 2 = Seldom; 3 = Depends; 4 = Usually; and 5 = Always.

For example, look at the statement below:

YOUR TEACHER: 1 2 3 4 5

1. Respects your ideas and concerns.

If you feel that your teacher always respects your ideas and concerns, then you would completely darken in the vertical space marked with a number 5, opposite question #1: 1 2 3 4 5

If you feel that sometimes your teacher respects your ideas and concerns and other times does not, in other words it depends upon the situation, then you would completely fill in the vertical space marked with a number 3, opposite question #1. 1 2 3 4 5

Please do not respond to any statement you do not understand, for we will not know how to interpret your response. If you would care to write any comments about such items, please feel free to write them on the bottom of this page.

There are no right or wrong answers to these items. Rather, your response simply indicates how you feel about your classroom experiences. Remember, your response to any question should indicate how you usually feel – not just an occasional type of thing.

Mark only one response for each question. More than one response will be treated as no response at all. Use only a #2 pencil to mark your answers. Please erase completely any response you wish to change.

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PUBLICATIONS:

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